BLM

Elko District Office

ENVIRONMENTAL ASSESSMENT

NewWest Gold USA Inc.

Long Canyon Exploration Project

July 2008

3809/NVN 82445; EA No. BLM/EK/PL-2008/011

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

NEWWEST GOLD USA INC.
LONG CANYON EXPLORATION PROJECT
ENVIRONMENTAL ASSESSMENT

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ACRONYM LIST

°	degrees
amsl	above mean sea level
APE	Area of Potential Effect
AUM	animal unit month
BLM	Bureau of Land Management
BMP	Best Management Practice
BMRR	Bureau of Mining Regulation and Reclamation
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EA	Environmental Assessment
F	Fahrenheit
FLPMA	Federal Land Policy and Management Act of 1976
gpm	Gallons per minute
GPS	Geographic Positioning System
IB	Informational Bulletin
MBTA	Migratory Bird Treaty Act
MSHA	Mining Safety and Health Administration
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NFS	National Forest Systems
NNHP	Nevada Natural Heritage Program
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NWG	NewWest Gold USA Inc.
Plan	Plan of Operations/Revised Permit for Reclamation
PM_{10}	Particulate Matter less than 10 microns
PMU	Population Management Unit
RFFAs	Reasonably Foreseeable Future Actions
ROW	Right-of-Way
RMP	Resource Management Plan
SHPO	State Historic Preservation Office
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management

NEWWEST GOLD USA INC.
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1 INTRODUCTION

NewWest Gold USA Inc. (NWG) proposes to expand mineral exploration activities beyond five acres of surface disturbance on public lands subject to 43 Code of Federal Regulations (CFR) 3809 at Long Canyon. Long Canyon is located in Elko County, Nevada in the eastern Pequop Mountains at elevations ranging between 5,800 feet above mean sea level (amsl) to 7,700 feet amsl and is approximately 28 miles east-southeast of the city of Wells, Nevada. The Project Area is accessed by driving east on Interstate Highway 80 from Wells, Nevada, for 27 miles to exit 378 (Oasis, Montello), then proceeding south for approximately four miles on a two-lane road and then west northwest on an existing dirt road.

In accordance with 43 CFR 3809.400, NWG submitted a Plan of Operations/Permit for Reclamation (Plan) (Record Number NVN-82445 / Reclamation Permit No. 0284) in July 2007 to the Elko District Office of the Bureau of Land Management (BLM) and the Nevada Division of Environmental Protection's (NDEP's) Bureau of Regulation and Reclamation (BMRR). The area of the Plan includes approximately 1,314 acres of public land.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act of 1969.

1.1 Purpose and Need

On lands open to location under the General Mining Law of 1872, as amended (Mining Law), the BLM administers the surface acres of public land and federal subsurface mineral estate under the Mining Law and the Federal Land Policy and Management Act of 1976 (FLPMA). FLPMA also governs BLM's administration of public lands not open to location under the Mining Law. NWG's purpose in proposing the Long Canyon Exploration Project is to explore for, locate and delineate precious metal (gold) deposits on public land open to location under the Mining Law within the Project Area. The proposed activities are needed to evaluate the mineral potential of the land. In order to conduct the proposed exploration activities, NWG submitted the Plan to the BLM and BMRR in July 2007, in accordance with BLM Surface Management Regulations 43 CFR 3809 and Nevada reclamation regulations at Nevada Administrative Code (NAC) 519A. The Mining Law allows the location and use of mining claims "under such regulations prescribed by law" and Section 302(b) of FLPMA recognizes the entry and rights of mining claimants while directing that the BLM take any action necessary to prevent unnecessary or undue degradation of the lands. These two laws form the primary statutory basis for the Surface Management Regulation codified at 43 CFR 3809 and BLM's purpose and need in reviewing and approving the Plan.

1.2 Land Use Plan Conformance

The Proposed Action as described in Chapter 2 is in conformance with the Wells Resource Management Plan (RMP) Record of Decision, approved 1985, page 25, Minerals and Energy (BLM 1985). The decision states that "the public lands would be managed in a manner which recognizes the Nation's needs for domestic sources of minerals."

1.3 Relationship to Other Laws, Policies, and Plans

The Proposed Action is further consistent with other federal, state and local laws, regulations, and plans to the maximum extent possible. As noted for the purpose and need statement, this includes FLPMA, BLM's 43 CFR surface management regulations and State of Nevada mining statutes and regulations.

The surface management regulations recognize that BLM is required to comply with the NEPA through preparation of an environmental document that analyzes the potential impacts the Proposed Action and any consultation required under other laws including the National Historic Preservation Act and the Endangered Species Act.

2 PROPOSED ACTION AND ALTERNATIVES

The Project is located on approximately 2,114 acres of public land administered by the BLM and private land in all or parts of Sections 21, 28, 29, and 32, Township 36 North, Range 66 East (T. 36 N., R. 66 E.), Mount Diablo Base & Meridian (MDB&M), Elko County, Nevada (Figure 2.1.1). NWG is currently conducting exploration at Long Canyon under Notice NVN-79949, which was issued in 2006 to NWG's joint venture partner, AuEx, Inc.

NWG has an existing exploration operation immediately adjacent to the Proposed Action on 320 acres of private land and on 480 acres of lands where the minerals are privately owned and the surface is public land. Under the mineral reservation for this particular property, as owner of the mineral estate, NWG has the right to use the surface of the land for all mineral exploration and development purposes. BMRR issued Reclamation Permit No. 0256 in November 2006 authorizing 20 acres of surface disturbance for mineral exploration on these lands.

As shown on Figure 2.1.1, the Project Area for this EA includes those lands subject to activities under the Proposed Action as well as those lands subject to the existing BMRR Reclamation Permit No. 0256. Taken together, all of the mineral exploration activities within the Project Area constitute NWG's Long Canyon Exploration Project (Project). The Project Area is comprised of approximately 2,114 acres, which includes the following: approximately 1,314 acres of public land (the public land constitutes the Plan Boundary for the Proposed Action), 320 acres of private land, and 480 acres of private mineral estate land where the surface is administered by the BLM (Figure 2.1.1). This EA has been prepared to comply with the National Environmental Policy Act of 1969 (NEPA) and evaluates the potential impacts from all of the proposed activities, without regard to whether they will occur on public lands, private lands or private mineral estate lands.

Table 2.0-1 outlines the total authorized and proposed surface disturbance acreage, by type of disturbance, for the Project. The 4.93 acres of existing Notice-level disturbance plus 20 acres of disturbance on private land and private mineral estate land not subject to the surface management regulations are included in the total surface disturbance of 64.93 acres for the Project. Surface disturbance under Phase 1 of the Proposed Action totals 19.60 acres, plus the existing 4.93 acres of Notice-level activities, all of which are on public land within the Plan Boundary. The location of the Phase 1 activities is shown on Figure 2.1.1. The remaining Proposed Action disturbance of 20.40 acres on public land would be implemented over the next ten years in subsequent phases that would be based on drill results and informational needs associated with metallurgical and engineering studies. The acreage of the subsequent phases outlined by activity in Table 2.0-1 could be redistributed throughout the Plan Boundary within the limit of the total 44.93 acres of surface disturbance to complete the Proposed Action. As the results from drilling in each phase become available and NWG determines where the next phase of exploration will occur, NWG will submit work plans to the BLM and BMRR to advise the agencies where the next phase of exploration activities will occur within the Plan Boundary.

Figure 2.1.1. Project Area and Land Status

This figure shows the Project Area boundary, permitted and proposed exploration activities, and land ownership.

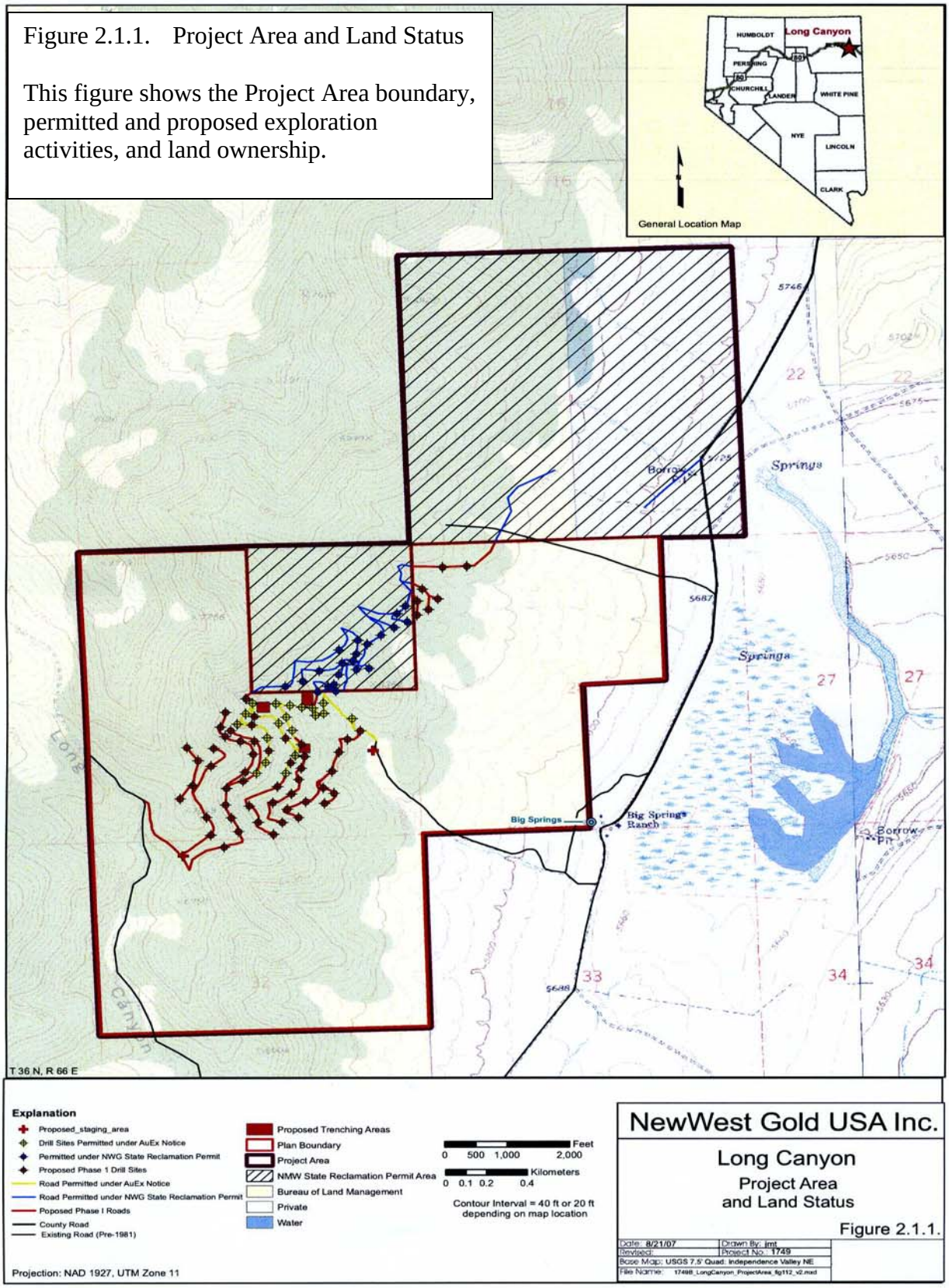

Table 2.0-1: Acreage of Authorized and Proposed Project Disturbance

Exploration Activity	Mineral Estate Lands Status[1]	Surface Disturbance (acres)				
		BMRR[2]	Proposed Action			
			Notice[3]	Phase I	Subsequent Phases	Total
Exploration Drill Roads	Private	15.37	0.00	0.00	0.00	15.37
	Public	0.00	4.24	13.05	13.50	30.79
Drill Sites (includes sumps)	Private	2.06	0.00	0.00	0.00	2.06
	Public	0.00	0.69	6.23	6.50	13.42
Overland Travel	Private	2.13	0.00	0.00	0.00	2.13
	Public	0.00	0.00	0.00	0.00	0.00
Overland Drill Sites and Staging Areas	Private	0.44	0.00	0.00	0.00	0.44
	Public	0.00	0.00	0.18	0.22	0.40
Trenches and Bulk Sample Sites	Private	0.00	0.00	0.00	0.00	0.00
	Public	0.00	0.00	0.14	0.18	0.32
Total Disturbance	Private	20.00	0.00	0.00	0.00	20.00
	Public	0.00	4.93	19.60	20.40	44.93
Total Combined (Private and Public) Disturbance		**20.00**	**4.93**	**19.60**	**20.40**	**64.93**

[1] Private is equivalent to private lands and private mineral estate lands within the Project Area and outside of the Plan Boundary. Public is equivalent to public lands within the Plan Boundary.
[2] NDEP Reclamation Permit No. 0256 authorizes 20 acres of surface disturbance on the private mineral estate lands.
[3] Notice #N-79949 authorizes 4.93 acres of surface disturbance on public lands.

2.1 Existing and Proposed Exploration Activities

The existing exploration activities include constructing drill sites, roads, maintaining (blading) roads, drilling, trenching, and bulk sampling. The Proposed Action is to continue these activities in order to delineate precious metal deposits within the Plan Boundary. A total disturbance of 44.93 acres on public land (Table 2.0-1) within the Plan Boundary would include the existing Notice-level surface disturbance (4.93 acres), proposed Phase I disturbance (19.60 acres), and proposed subsequent phases of disturbance (20.40 acres).

The Proposed Action would include maintenance of existing access roads, construction of exploration roads, construction of drill pads, trenching, and bulk sampling. Proposed Action activities would be implemented using the appropriate Best Management Practices (BMPs) established by the NDEP and the Nevada Division of Conservation Districts, 1994, *Handbook of Best Management Practices*, adopted by the State Environmental Commission December 7, 1994. The following sections provide detailed information about the Proposed Action..

2.1.1 Staging Areas

As shown on Figure 2.1.1, NWG may establish two staging areas on flat terrain in the Project Area. The staging areas would be used to store drilling supplies and samples and possibly as a temporary logging facility to examine drill cuttings and core. Equipment and facilities at the staging areas could include temporary trailers and storage containers. If one of the trailers is used as a logging facility, a portable propane generator would be used to supply electricity to this facility. NWG would obtain all necessary permits for this facility including but not limited to any air quality permits required by NDEP and any building permits required by Elko County. A Sani-Hut facility would be placed in one or both of the staging areas, as appropriate, during the field

season. A student working as a summer field assistant may from time to time camp in the Project Area during the course of conducting field investigations. Camping would entail either car camping or the use of a tent or trailer. Any on-site camping would comply with BLM fire-prevention guidelines and the camper would be equipped with suitable and necessary fire suppression equipment.

2.1.2 Exploration Drill Pads

New drill pad disturbance would be kept to the minimum necessary for safe access and a safe working area for equipment and crews. Drill pads typically require a working area of approximately 70 feet long by 30 feet wide. During Phase 1, NWG would construct 56 drill sites. More than one hole may be drilled at a specific site. The surface disturbance shown in Table 2.0-1 for the Phase 1 drill pads accounts for the steepness of the topography at each proposed drill pad. Sediment traps (sumps) would be constructed at each drill site to collect drill cuttings and manage drilling fluids. The exploration program would consist of drilling exploration holes utilizing truck-mounted, track-mounted, or articulated buggy-mounted reverse circulation or core drill rigs and support equipment. Holes would be both vertical and angle. Drill site construction within perennial drainages would be avoided. Drilling depths would average 600 feet. None of the holes drilled to date in the Plan Boundary have encountered ground water.

Reverse-circulation rotary drilling equipment may be used to drill pre-collars for some of the core holes, which would be drilled to test deeper targets. A maximum of five rotary holes may be left open at any time prior to resuming drilling with core-drilling equipment.

All equipment would be properly muffled and equipped with suitable and necessary fire suppression equipment, such as fire extinguishers and hand tools. All Project-related traffic would observe prudent speed limits to enhance public safety, protect wildlife and livestock, and minimize dust emissions. All activities would be conducted in conformance with applicable federal and state health and safety requirements.

2.1.3 Trenching and Bulk Sampling

As shown on Figure 2.1.1, four trenches may be constructed in Phase I to conduct near-surface mapping and sampling. The trenches would be an average of 15 feet wide by five feet deep, and up to 100 feet long including the spoil piles and would be constructed with a ramp to facilitate safe ingress and egress of Project personnel or wildlife in the event that wildlife enters one of the trenches. The surface disturbance associated with the four trenches would be approximately 0.14 acre under Phase 1. A bulk sample for metallurgical testing may be collected from the trenches.

2.1.4 Road Construction

Road construction would occur intermittently throughout the duration of the Proposed Action. Specific road locations would be determined in the field based on geologic information collected during the exploration program and to avoid any identified sensitive resources. Overland travel is not practical in most of the Project Area because of the topography. Therefore, the majority of the Proposed Action activities would occur on constructed roads and drill pads. New roads

would average approximately 16 feet in width. The total disturbance width of the roads (i.e., the road width plus the adjacent sidecast material) would depend on slope steepness.

While every effort would be made to keep road grades at ten percent or less, there may be short spurs where ten percent grades would be exceeded. Balanced cut and fill construction would be used to the extent practicable to minimize the exposed cut slopes and the volume of fill material. Since the depth of cut would be kept to a minimum, growth media removed during construction would be stockpiled in the fill slope and redistributed during reclamation.

Road construction within drainages would be avoided to the extent practicable. When drainages must be crossed with a road, BMPs would be followed to minimize the surface disturbance and erosion potential. In addition, culverts would be installed if necessary to maintain proper drainage on the exploration roads.

Figure 2.1.1 shows the location of the access roads into the Project Area. During Phase I, maintenance of existing roads would be conducted only on an as-needed basis and would include minor seasonal regrading, as well as, re-establishment of waterbars and smoothing rutted surfaces and holes, as necessary. Erosion control items such as waterbars would be monitored in the spring and fall.

Approximately 13.05 acres of surface disturbance from road construction is expected under Phase 1. Subsequent phases may include upgrading some of the initial phases and Notice-level drill roads in Sections 28 and 29 T. 43 N., R. 66 E. into all-weather roads. This would likely entail widening the 12-foot wide running surface to a 16-foot running surface and armoring the surface with crushed rock suitable for use as road material. The material would come from a BLM approved material site or from a source located on private land.

2.1.5 Equipment

Personnel would access the site in four-wheel drive vehicles. One or more truck-mounted, track mounted, or articulated buggy-mounted reverse circulation or core drill rigs would be used for drilling in the Project Area. A Cat D7 or equivalent would be used to construct the roads and drill sites where needed. Roads and drill sites would be reclaimed using a bulldozer and/or a Cat 325 L or Cat 350 excavator or equivalent. The following vehicles and equipment could be used in conjunction with Project activities.

- Up to five reverse-circulation truck-mounted, track-mounted, or articulated buggy-mounted rotary drill rigs or core rigs;
- Two or more 2,000 to 3,500 gallon water trucks;
- Four or more all-terrain vehicles;
- Two or more pipe trucks;
- Up to two booster trucks;
- One or more excavator with pneumatic hammer;
- Two or more auxiliary air compressors; and
- Two or more portable light plant/generators.

NWG would take steps to prevent fires by ensuring that each field vehicle carries hand tools and a fire extinguisher. Water trucks at the Project would be used in the event of a fire. All portable

equipment, including drill rigs, support vehicles, and drilling supplies, would be removed from the Project Area during extended periods of non-operation.

2.1.6 Water Use

Water or nontoxic drilling fluids may be utilized, as necessary, during drilling. NWG would obtain water from Big Springs Ranch under the provisions of an existing agreement.

2.1.7 Work Force

There would be two geologists on site throughout Proposed Action-related drilling activities. The duties of the geologists include sitting the drill rig, logging each hole, and advising the drill operator as needed. The geologists would travel to and from the drill site in a separate four-wheel drive pickup truck.

The standard drill rig crews would consist of a drill operator and two helpers. The helpers remove and box the recovered core or rotary samples, mix drilling fluids in the portable mud tank, operate the water truck, assist with drilling operations, and conduct maintenance as necessary. The crew would be transported to and from the drill site in a four-wheel drive vehicle. In addition, three earthmoving contractors would be needed to conduct activities under the Proposed Action and a student working as a summer field assistant may conduct field investigations. A total of 21 people (two geologists, 15 drill crew members, one student worker, and three earthmoving contractors) may be working at any time on the Proposed Action. Drilling activities may occur in two daily shifts. A maximum of 38 employees or contract workers would be required for the duration of the Proposed Action activities.

2.1.8 Surface and Ground Water Control

BMPs for sediment control would be utilized during construction, operation, and reclamation to minimize sedimentation from disturbed areas. Proposed construction and drilling activities would avoid impacts to springs and seeps by placement of fabric and/or straw bale (certified weed-free) filter fences below surface disturbance that would occur upslope of water sources to prevent sediment runoff. In order to facilitate drainage and prevent erosion, waterbars would be constructed on all bladed roads, as needed, at BLM-recommended spacings.

Sediment control structures could include, but not be limited to, fabric and/or straw bale (certified weed-free) filter fences, siltation or filter berms, mud pits, and downgradient drainage channels in order to prevent unnecessary or undue degradation to the environment. Sediment traps, constructed as necessary on drill pads, would be used to settle drill cuttings and prevent their release.

No construction or drilling activities of any kind will take place in a spring or seep riparian area.

2.1.9 Solid and Hazardous Materials

All refuse generated by the Proposed Action would be disposed of at an authorized landfill facility off site, consistent with applicable regulations. No refuse would be disposed of on site. Water and/or nontoxic drilling fluids or products, including Abandonite, Alcomer 120L,

bentonite, EZ-mud, polyplus, and super plug, would be utilized as necessary during drilling and would be stored within the Plan Boundary.

Hazardous materials utilized within the Plan Boundary would include diesel fuel, gasoline, and lubricating grease. Approximately 500 gallons of diesel fuel would be stored in fuel delivery systems on vehicles and drill rigs. Approximately 150 gallons of gasoline would be stored in fuel delivery systems for light vehicles. Approximately 100 pounds of lubricating grease would be stored on the drill rigs or transported by drill trucks. All containers of hazardous substances would be labeled and handled in accordance with Nevada Department of Transportation (NDOT) and Mining Safety and Health Administration (MSHA). In the event hazardous or regulated materials, such as diesel fuel, were spilled, measures would be taken to control the spill, and the BLM, NDEP, and/or the Emergency Response Hotline would be notified, as required. In addition, a spill kit would be kept on site. If any oil, hazardous material, or chemicals are spilled during operations, they would be cleaned up immediately. After clean up, the oil, noxious fluids, or chemicals and any contaminated material would be removed from the site and disposed of at an approved disposal facility.

Self-contained, portable, chemical toilets would be used for human waste and all human waste would be hauled off site.

2.1.10 Reclamation

Reclamation would be completed to the standards described in 43 CFR 3809.420 and NAC 519A. Reclamation would meet the reclamation objectives as outlined in the United States Department of Interior Solid Minerals Reclamation Handbook #H-3042-1 (BLM 1992), Surface Management of Mining Operations Handbook H-3809-1 (BLM 1989), and revegetation success standards per BLM/NDEP "Revised Guidelines for Successful Mining and Exploration Revegetation" (BLM 1999). Existing roads would be utilized as much as possible, minimizing the need for road construction. All NWG drill sites, sumps, and road construction would be recontoured.

The proposed acres of disturbance shown in Table 2.0-1 specifies the Phase I disturbance and provides a preliminary estimate of the surface disturbance from the subsequent phases by disturbance type (i.e., roads, pads, trenches, and staging areas). In order to verify that the surface disturbance due to Project roads and other features remain within the BLM and NDEP authorized limits, NWG would conduct Global Positioning System (GPS) mapping at the end of each field season and submit the resulting disturbance calculations in conjunction with the annual reclamation report that would be provided to the BMRR and BLM by April 15th of each subsequent year.

2.1.10.1 Schedule of Reclamation

Reclamation activities would be conducted concurrently with exploration activities when the disturbance is no longer needed. Reclamation would begin within exploration areas considered inactive, without potential, or completed, at the earliest practicable time. Earthwork and revegetation activities are limited by the time of year during which they can be effectively implemented. Table 2.1-1 outlines the anticipated reclamation schedule on a quarterly basis. Site conditions and/or yearly climatic variations may require that this schedule be modified to

achieve revegetation success. Reclamation activities would be coordinated with the BLM and BMRR whenever necessary. The proposed reclamation is expected to have a duration of up to four years from the time of commencement of final reclamation and would be initiated within one year after the completion of exploration activities. Revegetation is anticipated to take three years after the time of seeding to achieve success.

The trenches would be reclaimed at the end of the field season in the year in which they were built.

Table 2.1-1: Anticipated Exploration Reclamation Schedule

TECHNIQUES	Quarter				
	1st Jan-Mar	2nd April-June	3rd Jul-Sept	4th Oct-Dec	Year(s)
Regrading					Within one year of Project completion
Seeding					Within one year of Project completion
Monitoring					3 years beyond regrading and reseeding

2.1.10.2 Drill Hole Plugging

Except for the reverse-circulation rotary holes that may be drilled as pre-collars for some of the core holes as discussed in Section 2.1.2, all drill holes (i.e., boreholes) would be plugged prior to the drill rig moving from the drill site in accordance with Nevada Revised Statutes (NRS) 534 and NAC 534.4369 and NAC 534.4371.

If any drill hole encounters artesian conditions, the drill hole would be contained pursuant to NRS 534.060 and NAC 534.378 and would be sealed by the method described in subsection 2 of NAC 534.4371. If casings are set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420 or the casings would be completely removed from the drill hole and then the hole would be plugged according to NAC 534.4369 and NAC 534.4371.

2.1.10.3 Regrading and Reshaping

Regrading and reshaping of all constructed drill sites and exploration roads would be completed to approximate the original topography. Fill material, would be pulled onto the roadbeds to fill the road cuts and restore the slope to natural contours. Roads and drill sites would be regraded and reshaped with a front-end excavator or bulldozer. Reclamation of overland travel roads or pads that do not require replacement of sidecast material would be accomplished with an excavator bucket/ripper or a dozer to knock down and smooth any berms and relieve road compaction. Tire tracks (trails created by overland travel) would be lightly scarified and left in a rough state as necessary to relieve compaction, inhibit soil loss from runoff, and prepare the seed bed.

Should any drainages be disturbed, they would be reshaped to approach the pre-construction contours. The resulting channels would be of the same capacity as up and downstream reaches and would be made non-erosive by use of surface stabilization techniques (rip-rap) where

necessary, and ultimately revegetated. Following completion of earthwork, all disturbed areas would be broadcast seeded as discussed in the following section. No drainage with viable riparian habitat will be disturbed by Project construction or drilling activities.

2.1.10.4 Revegetation

Generally, seedbed preparation and seeding would take place in the fall after regrading of disturbed areas. All reclaimed areas would be broadcast seeded with a cyclone-type bucket spreader or a mechanical blower. Broadcast seed would be covered by harrowing, raking, or other site-specific appropriate methods as necessary to provide seed cover and enhance germination. Reclaimed surfaces would be left in a textured or rough condition (small humps, pits, etc.) to enhance moisture retention and revegetative success while minimizing erosion potential.

The seed list provided by the BLM and listed in Table 2.1-2, is based on known soil and climatic conditions and was selected to establish a plant community, which would support the post-exploration land use. The mix is designed to provide species that can exist in the environment of northeastern Nevada, are proven species for revegetation, and/or are native species found in the existing plant communities. Broadcast seeding would be at a rate of approximately 14.75 pounds pure live seed per acre. Changes and/or adjustments to the reclamation plant list and/or application rate would be made in consultation with and approval by the BLM and BMRR.

Timing of revegetation activities is critically important to the overall success of the program. Seeding activities would be timed to take advantage of optimal climatic windows and would be coordinated with other reclamation activities. In general, earthwork and drainage control would be completed in the summer or early fall and seedbed preparation would be completed in the fall, either concurrent with or immediately prior to seeding. Seeds would be sown in late fall to take advantage of winter and spring precipitation and optimum spring germination. Early spring seeding may be utilized for areas not seeded in the fall. Seeding would not be conducted when the ground is frozen or snow covered.

Table 2.1-2: Preliminary Revegetation Seed Mixture

Species		Application Rate (lbs[1]/acre)
Common Name	**Scientific Name**	
Canby bluegrass	*Poa secunda*	2.00
Thickspike wheatgrass	*Elymus lanceolatus*	4.50
Western yarrow	*Achillea millefolium* var. *occidentalis*	0.25
Prostrate kochia	*Bassia prostrata*	2.00
Blue flax	*Linum Perenne*	0.25
Small burnet	*Sanguisorba minor*	0.25
Bluebunch wheatgrass	*Pseudoroegneria spicata* ssp. *spicata*	5.50
Total		**14.75**

[1]Pure live seed

2.1.10.5 Removal or Stabilization of Building, Structures, and Support Facilities

No permanent building or structures would be constructed on Public lands within the Plan Boundary. The trailers and storage containers that may be placed on the two staging areas would be removed when the exploration activities have been completed. All equipment and supplies would be removed following completion of the Proposed Action. Other materials, including scrap, trash, and unusable equipment would be removed on a regular basis and disposed of in accordance with federal and state regulations and laws.

2.1.11 Environmental Protection Measures

NWG commits to the following environmental protection measures to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Proposed Action. The measures are derived from the general requirements established in the BLM's Surface Management Regulations at 43 CFR 3809 and BMRR mining reclamation regulations, as well as other water and air quality regulations. Additionally, NWG has volunteered to use environmental protections measures for the exploration activities on the private minerals estate land that are in substantial compliance with the 43 CFR 3809 performance standards.

Reclamation

- On a yearly basis, on or before April 15th, NWG would submit to the BLM and BMRR a summary of exploration activities for the previous year, and a reclamation cost estimate for existing surface disturbance to ensure consistency with the current bond amount. NWG will provide a GPS map of the disturbance and a summary of exploration activities from the previous year and they will also provide a map and bond calculation for the next year's proposed work.

- Reseeding would be consistent with all BLM recommendations for mix constituents, application rate, and seeding methods.

- Drill roads, pads, and sumps not needed for future exploration would be reclaimed as soon as practicable after completion of exploration activities.

- The trenches will be reclaimed at the end of the field season in the year in which they were built.

Safety

- Public safety would be maintained throughout the life of the Proposed Action. All equipment and other facilities would be maintained in a safe and orderly manner.

- All trenches, sumps, and other small excavations that pose a hazard or nuisance to the public, wildlife, or livestock would be adequately fenced to preclude access.

- All applicable state and federal fire laws and regulations would be complied with, and all reasonable measures would be taken to prevent and suppress fires in the Plan Boundary.

Air

- Emissions of fugitive dust from disturbed surfaces would be minimized by utilizing appropriate control measures such as prudent speed limits (i.e., 15 miles per hour) and spraying roads with a water truck, if necessary.

Wastes

- Pursuant to 43 CFR 8365.1-1(b)(3), no sewage, petroleum products, or refuse would be dumped from any trailer or vehicle.
- Portable chemical toilets would be utilized and all human waste would be hauled off site.
- Only nontoxic fluids would be used in the drilling process.
- Drill cuttings and fluids would be contained on site utilizing appropriate control measures. Sediment traps would be used, as necessary, and filled following completion of exploration activities.
- Regulated wastes would be removed from the Plan Boundary and disposed of in a state, federally, or locally designated area.
- NWG would follow the Spill Prevention Plan as specified in the Plan (NWG 2007).

Water Resources

NWG would implement the following measures to ensure that Project activities would not reduce the flow of Johnson Springs, nor reduce the production capacity of any West Wendover City (City) wells, nor impair the quality of the water of Johnson Springs or any City wells. To enhance the immediate understanding of the hydrology of the area and to ensure that the Proposed Action does not damage Johnson Springs or any City wells, NWG would implement the measures outlined below. These measures have been developed in consultation with West Wendover city officials.

- NWG would construct a replacement water well at a site to be designated by the City and according to specifications developed by the City which can serve as a backup water supply in the event the Long Canyon mineral exploration drilling activities affect Johnson Springs.
- Prior to constructing the replacement water well, NWG would not drill mineral exploration holes below the elevation of Johnson Springs.
- NWG would construct four water-level monitoring wells as described in the proposed work scope submitted to the City and as approved by the City's Water Authority on July 8, 2008. Most of the mineral exploration holes are not expected to extend below the water table; however, if a mineral exploration hole encounters a significant amount of water, NWG would notify the City and use cement to plug any such hole.

- To the extent permitted by disclosure laws applicable to publicly-held companies, NWG would gather hydrologic data from the drilling program and provide it to the City. In particular, NWG would advise the City as soon as practical of any hydrologically unusual drilling results such as large cavities, major lost circulation, and artesian water flows.

- NWG would advise the City, and other appropriate authorities, of all reportable spills. The NDEP's threshold for a reportable spill of a petroleum product is 25 gallons or three cubic yards of contaminated soil. In addition to this, NWG would also advise the City of any spill of a petroleum product exceeding ten gallons.

- NWG would purchase a turbidity meter and provide it to the City to connect to the existing telemetry system. In return, NWG would require access to the real-time data collected by the City from Johnson Springs.

- NWG would, for one year, increase the quarterly water-quality monitoring data to monthly data collection and pay for the City's hydrologic consultant to collect the sample and for the analytical costs.

- In coordination with the City's hydrologic consultants, NWG would conduct Part I of a Hydrology Study of Johnson Springs described in the proposed work scope submitted to the City on May 16, 2008 with the goals of:

    1. Establishing what has localized Johnson Springs;

    2. Assessing the relationship of the nearby smaller springs to Johnson Springs; and

    3. Understanding the general nature of the source(s) of the water to Johnson Springs.

- NWG would also propose to coordinate with the City's hydrologic consultants to conduct a general hydrologic study of the northern part of Goshute valley with a goal of assessing the adequacy of the valley aquifer to supply water to the City's Shafter wells.

- Upon completion of the Part I Hydrologic Study of Johnson Springs, and the northern Goshute Valley generalized hydrologic study, NWG would work with the City to develop contingency plans for assuring that adequate water is available to the City.

In addition to the above measures, all drill holes (except those proposed to be completed as monitoring wells) would be plugged prior to the drill rig moving from the drill site in accordance with NRS 534 and NAC 534.4369 and NAC 534.4371 with the exception of drill holes collared with a reverse-circulation drill rig and completed with a core rig, which would be plugged prior to the core rig moving from the drill site. If any drill hole encounters artesian flow, the drill hole would be contained pursuant to NRS 534.060 and NAC 534.378 and would be sealed by the method described in Subsection 2 of NAC 534.4371. If casings are set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420 or the casings would be completely removed from the drill hole and then the hole would be plugged according to NAC 534.4369 and NAC 534.4371.

Cultural Resources

A finding of no adverse effects to cultural resources for the Long Canyon Project would be contingent upon adherence to the following mitigation measures. Since the entire Long Canyon Exploration Project has been determined to constitute a single federal undertaking under the National Historic Preservation Act, these environmental protection measures would apply to the entire 2,114 acre Project Area..

- Exploration would occur in phases that would be outlined by work plans and maps for activities that would occur anywhere within the Plan Boundary. These work plans would be submitted to the BLM and BMRR for processing prior to commencement of activities. The maps would show the location of the planned surface disturbance. The BLM would inform NWG if their planned activities would be conducted in or near eligible or unevaluated cultural properties. NWG would avoid or mitigate disturbance to eligible or unevaluated properties. If the work plan proposes exploration activities next to or in unevaluated site areas and if NWG does not wish to relocate the drill pad then the BLM would insure that NWG tested these sites, and BLM would make a final determination of eligibility;

- A 50-meter buffer zone would be established around eligible and unevaluated cultural resource sites near the Project Area to provide protection to the sites during construction and exploration. Equipment, other vehicles and earth disturbing activities would be prohibited within the buffer zone unless authorized in writing by the BLM authorized officer;

- If avoidance is not practical or adverse effects cannot be effectively mitigated through avoidance, BLM would insure that NWG conducts data recovery in conformance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716) or undertake other appropriate mitigation;

- Pursuant to 43 CFR §10.4(g), NWG would notify the BLM authorized officer, by telephone and with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR § 10.2), and any previously undocumented archaeological, historic or paleontological sites. All NWG-related activities within 100 meters of the discovery would cease immediately and NWG or its authorized representative would secure the location to prevent vandalism or other damage. Activity at the location shall be suspended until after the discovery has been evaluated, any necessary mitigation measures completed and BLM authorized officer has issued a written Notice to Proceed. Human remains, funerary objects, sacred objects, or objects of cultural patrimony found on Federal land will be handled according to the provisions of NAGPRA and its implementing regulations (43 CFR § 10). Human remains and funerary objects found on state or private land will be handled according to the provisions of Nevada statute NRS 383.150 to 383.190;

- NWG would insure that measures are in place to protect cultural resources from runoff, drilling mud or effluent emitting from drill pads or new/upgraded roads;

- An archaeological monitor, funded by NWG, could be required during active construction at eligible or unevaluated cultural resource sites located within close proximity to the project. BLM would make determinations regarding monitoring needs case by case;

- Given the long term nature of the Proposed Action and the potential for Project-related deterioration of historic properties, BLM could require periodic site monitoring by a NWG funded archaeologist. BLM would determine the need and frequency of monitoring based on condition of the resources and the nature of ongoing activities within the Project Area;

- NWG would train project workers, contractors and any other Project personnel regarding the potential to encounter historic or prehistoric sites and objects, the proper procedures in the event that cultural items are encountered, prohibitions against artifact collection, and prohibitions against disclosing the location of culturally sensitive areas. Due to the potential for increased public access via exploration roads, NWG would be responsible for reporting to the BLM, actions of the public (such as artifact collecting or driving ATVs through historic properties) within the Project Area that could impact cultural resources;

- NWG would not disturb, alter, injure or destroy any scientifically important paleontological remains; or any historical or archaeological site, structure, building, object or artifact within the Project Area, cumulative effects areas or on public lands. NWG would be responsible for ensuring that its employees, contractors or any others associated with the Project do not collect artifacts, or damage or vandalize archaeological, historical or paleontological sites or the artifacts within them. Should damage to cultural resources occur during the period of construction, operation, maintenance or rehabilitation due to the unauthorized, inadvertent or negligent actions of the proponent or any other project personnel, the proponent shall be responsible for costs of rehabilitation or mitigation. Individuals involved in illegal activities would be subject to penalties under the Archaeological Resources Protection Act (16 U.S.C 470ii), the FLPMA (43 U.S.C 1701), the Native American Graves and Repatriation Act (16 U.S.C. 1170) and other applicable statutes;

- Any survey monuments, witness corners, or reference monuments would be protected.

Invasive, Nonnative Species

- Noxious weeds would be controlled through implementation of preventive BMPs, which would include, but not be limited to the following: (a) any heavy equipment moving in to the Project Area from another project site would have wheel wells, wheels and tires, bumpers, undercarriage, etc., cleaned with high pressure water or air to remove any weed seeds prior to moving onto the site; (b) only certified weed-free seed would be used for reclamation seeding; and (c) all reclamation would be monitored for infestations of noxious weeds.

- Eradication measures would be implemented if noxious weeds were found.

- The reclamation bond would not be released until any infestations are controlled.

Special Status Species and Wildlife

- NWG would not conduct surface disturbing activities when snow conditions result in mule deer (*Odocoileus hemionus*) using the lands within the Plan Boundary as winter habitat. Surface disturbing activities would not take place until snow conditions allow. These seasonal restrictions on creating new surface disturbance would be implemented in coordination with BLM wildlife specialists in response to site-specific, on-the ground conditions.

Soils and Access

- An existing road that avoids Big Springs Ranch would be used to access the Plan Boundary.

- Sediment control structures would be used and could include, but not be limited to, fabric and/or straw bale (certified weed-free) filter fences, siltation or filter berms, mud pits, and downgradient drainage channels in order to prevent unnecessary or undue degradation to the environment. Sediment traps, constructed as necessary on drill pads, would be used to settle drill cuttings and prevent their release.

- In the event that any existing roads are severely damaged as a result of NWG activities, NWG would return the roads to their original condition.

Vegetation

- If a unique plant community cannot be avoided, vegetation would be replaced on a one to one basis with plantings of similar tree species and seeding of similar shrub species.

Migratory Birds

- Prior to surface disturbance being conducted during the avian breeding season (April 1 though July 31), NWG would conduct an annual migratory bird nest survey within the Plan Boundary. The nest survey would be conducted by a qualified biologist within potential breeding habitat prior to NWG conducting any surface disturbing activities during the avian breeding season. If nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated and the buffer area avoided to prevent destruction or disturbance to nests until they are no longer active.

2.1.12 Monitoring

Yearly visits to the site would be conducted to monitor the success of the revegetation. The proposed reclamation is expected to have a duration of up to four years from the time of commencement of final reclamation and would be initiated within one year after the completion of exploration activities. Revegetation is anticipated to take three years after the time of seeding

to achieve success. Erosion control structures such as waterbars would be monitored in the spring and fall. In addition, monitoring for noxious weeds infestations would be conducted.

During exploration activities, monitoring would involve management of drilling procedures to contain cuttings, monitoring road conditions during periods of inclement weather, monitoring of the sediment control measures to ensure they are functioning properly, monitoring of the 50-meter buffer zone around eligible and unevaluated cultural resource sites, periodic monitoring by a NWG-funded archaeologist on a frequency to be determined by BLM, monitoring by an archaeologist during active road construction in the vicinity of eligible or unevaluated cultural resource sites to ensure avoidance of these sites, and keeping sites clean and safe.

2.2 No Action

The NEPA requires that an alternative of No Action be analyzed in an EA. Under the No Action Alternative, the Proposed Action would not be approved. NWG could continue exploration activities under their approved Notice (#N-79949) but they would be limited to a maximum of five acres of surface disturbance, a majority of which is currently disturbed. This five acres could be reclaimed and released by the BLM, based on compliance with the revegetation success release criteria; thereby, allowing NWG to create another (sequential) five acres of disturbance. In addition, NWG could continue exploration on private land and private mineral estate and create up to 20 acres of disturbance as approved under BMRR Permit No. 0256. A portion of the 20 acres has been disturbed and similar to the Notice-level disturbance, could be reclaimed and released by BMRR, based on revegetation success release criteria, with additional disturbance occurring up to the 20 acre approval limit. Activities associated with this total disturbance of 25 acres of surface disturbance include maintenance of existing access roads, construction of exploration roads, construction of drill pads, trenching, and bulk sampling

2.3 Alternatives Considered But Eliminated from Detailed Analysis

NWG and BLM considered several alternatives to the Proposed Action; however, none of the alternatives met the purpose and need for the Project and were; therefore, eliminated from detailed analysis. The first alternative considered was the use of overland travel to avoid construction of roads. This alternative was eliminated due to the fact that it is physically impossible to traverse the target areas without constructing roads due to the steepness of the terrain and density of trees. The second alternative considered and eliminated was re-permitting and analyzing each phase of work. Permitting after each phase would result in the loss of a field season between each phase because of the time involved in analyzing resources and completing permitting. This potential alternative was eliminated from detailed analysis because it would not result in incremental environmental benefits given the environmental protection measures included in the Proposed Action. Additionally, re-permitting subsequent phases would result in an unnecessary consumption of BLM resources without adding any incremental environmental benefits. A third alternative that was considered involved only working on private land under the existing BMRR permit. This alternative did not meet the purpose and need for the Project and was eliminated because targets for mineral exploration in the Project Area occur on both private and public land.

3 AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

The Project Area is located at elevations ranging between 5,800 feet amsl to 7,700 feet amsl and is located on approximately 2,114 acres, which is comprised of public land administered by the BLM and private land. Grazing, mineral exploration, and dispersed recreation have contributed to existing conditions (the baseline that reflects past and present actions) in the Project Area. The cumulative effects of these past, present, and reasonably foreseeable future actions are discussed in Section 3.4.

This chapter addresses the elements, identified through scoping that are present within the Project Area or could be affected by the Project. The elements identified include the following: Air Resources, Cultural Resources, Invasive and Nonnative Species, Migratory Birds, Native American Religious Concerns, Special Status Species, Water Resources, Range Resources, Recreation, Social Values and Economics, Soils, Vegetation, Visual Resources, and Wildlife. The South Pequop and Bluebell Wilderness Study Areas (WSAs) are located approximately 15 and 13 miles, respectively, from the Project Area. There would be no direct or indirect impacts to the wilderness character of these WSAs from Project activities; therefore, wilderness is not discussed further in this EA.

3.1 Elements Not Present or Not Affected

As a result of scoping, BLM specialists determined that the following seven elements are not present or would not be affected by the Project and are therefore not considered further in this EA.

- Areas of Critical Environmental Concern;
- Environmental Justice;
- Farmlands (Prime or Unique);
- Floodplains;
- Hazardous or Solid Wastes
  The Project would not be affected by hazardous or solid wastes because of the small quantities of hazardous materials, such as diesel fuel, gasoline, and lubricating grease that are only present in the delivery systems of the mobile equipment. These materials will not be stored on site. All solid waste would be removed to an authorized landfill facility off site. Any accidental spills would be addressed in the Spill Prevention Plan that is a part of the Plan.
- Wetland/Riparian Zones; and
- Wild and Scenic Rivers.

3.2 Effects of the Proposed Action Alternative

The direct and indirect effects to potentially affected resources are discussed in this section. This discussion also includes the existing condition of those resources present in the Project Area, which could be affected by the Project (including the 4.93 acres of disturbance authorized under BLM Notice #N-79949 and the 20 acres of surface disturbance authorized under BMRR Permit No. 0256). Impacts as a result of the No Action Alternative and the Cumulative impacts are

discussed separately in Sections 3.3 and 3.4. Direct effects are created by the action and occur at the same time and place. Indirect effects are a result of the action that are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8).

3.2.1 Air Resources

3.2.1.1 Affected Environment

The Project is located on the east flank of the Pequop Mountains in Elko County, where the climate is arid and characterized by warm, dry summers and cold, wet winters. The mean annual precipitation in Oasis, Nevada, located approximately two miles north of the Project, is 8.63 inches and the mean annual snowfall is 23.9 inches (Western Regional Climate Center 2008). The average annual low and high temperatures are 29.1 and 60.8 degrees Fahrenheit (°F), respectively.

NDEP air quality regions are generally the same as the Air Basins. The Project is located within the Goshute Valley Air Basin (187). The Goshute Valley Air Basin is designated by the Environmental Protection Agency (EPA) as "unclassified" per National Ambient Air Quality Standards as set forth in 40 CFR 81.329. An unclassified area is one for which no ambient air quality data are available and the ambient concentrations could be above or below the ambient air quality standards; however, unclassified areas are managed as in attainment. Generally, the ambient air quality over much of the valley is good, due to the limited population and absence of major industrial activity. The Project Area is classified as a Class II area, pursuant to the Prevention of Significant Deterioration regulations promulgated under the Clean Air Act (CAA). The Goshute Valley Air Basin is treated as an area "in attainment" with ambient air quality standards. Therefore, new sources within this basin must evaluate their impacts to air quality with respect to the ambient standards. The major source of fugitive dust in the vicinity of the Project Area includes vehicular traffic on unpaved roads.

3.2.1.2 Environmental Consequences

Surface disturbance associated with the Project could impact up to 64.93 acres of soils. Travel on dirt access roads, drilling, and excavation activities within the area of the Proposed Action would create fugitive dust, causing a minor impact to air resources. As described in the Proposed Action, fugitive dust would be controlled by minimizing surface disturbance. Speed limits on access roads would be observed and travel on roads within the Project Area would be conducted at prudent speeds. Impacts would be reduced by using water trucks for dust suppression, if required (e.g., when the roads are dry and dusty). Reclamation of proposed surface disturbance would gradually eliminate any potential for long-term impacts to air resources.

3.2.2 Vegetation

3.2.2.1 Affected Environment

The Project is located within the Calcareous Mountains Floristic Section, Great Basin Division, of the Intermountain Region (Cronquist et al. 1972). According to digital BLM vegetation data, a total of six vegetation communities is located within the Project Area (Figure 3.2.1). Great Basin Piñon-Juniper Woodland is the dominant vegetation community in the Project Area with an overstory that consists of Utah juniper (*Juniperus osteosperma*), singleleaf piñon pine (*Pinus monophylla*), and a sparse mixture of shrubs and forbs in the understory. The next largest vegetation communities, which are located on the eastern side of the Project Area, consist of the following: Great Basin Xeric Mixed Sagebrush Shrubland and Inter-Mountain Basin Big Sagebrush Shrubland. Inter-Mountain Basin Montane Sagebrush Steppe is present in two small locations in the western portion of the Project Area. An extremely small community of Inter-Mountain Basin Mountain Mahogany Woodland and Shrubland is also present within the western portion of the Project Area. Located along the southeast border of the Project Area, is an extremely small occurrence of Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland that is associated with the springs outside of the Project Area

3.2.2.2 Environmental Consequences

The Project would result in surface disturbance of up to approximately 64.93 acres of vegetation over the life of the Project. The disturbance would be created incrementally and be dispersed throughout the Project Area. Reclamation would begin upon completion of exploration activities using a BLM recommended seed mix (Table 2.1-2). In addition, the disturbance would be primarily linear (roads) or patchy (drill pads) in form, and therefore highly likely to be recolonized by surrounding vegetation. No disturbance is proposed under the Project within the Great Basin Foothill and Lower Montane Riparian Woodland Shrubland or within the Inter-Mountain Basin Mountain Mahogany Woodland and Shrubland; therefore, no impacts to these unique communities would occur.

3.2.3 Invasive, Nonnative Species

3.2.3.1 Affected Environment

An “invasive species” is defined as a species that is nonnative to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112). Invasive, nonnative species are species that are highly competitive, highly aggressive, and easily spread. They include plants, animals, and insects designated as “invasive,” “noxious,” or “pests” by federal, state, or other legally responsible authority. There are no known invasive, nonnative animal species (pests) that are mandated for control in the Project Area; therefore, pests are not further addressed in this EA.

The BLM defines “noxious weed” as “a plant that interferes with management objectives for a given area of land at a given point in time” (BLM 1996). Approximately 45 weed species are currently listed as noxious by the State of Nevada in NAC 555.010. The BLM Nevada strategy for noxious weed management is to “prevent and control the spread of noxious weeds through

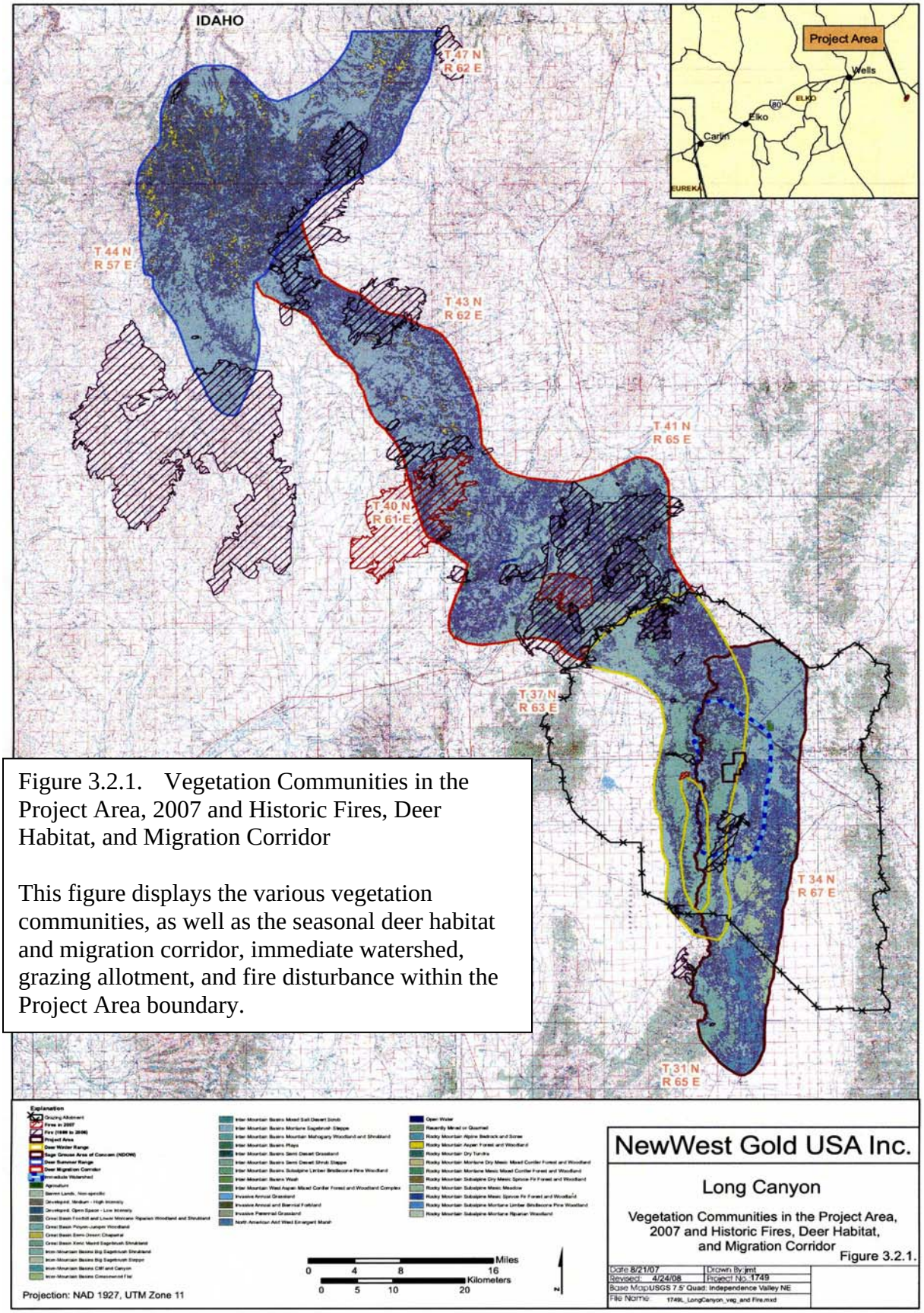

Figure 3.2.1. Vegetation Communities in the Project Area, 2007 and Historic Fires, Deer Habitat, and Migration Corridor

This figure displays the various vegetation communities, as well as the seasonal deer habitat and migration corridor, immediate watershed, grazing allotment, and fire disturbance within the Project Area boundary.

local and regional cooperative efforts… to ensure maintenance and restoration of healthy ecosystems on BLM-managed lands. Noxious weed control would be based on… prevention, education, detection, and quick control of small infestations" (BLM 1997). The Nevada Department of Agriculture, Plant Industry Division maintains a "Nevada Noxious Weed List."

There are no known invasive species infestations in the Project Area. Known occurrences of Scotch thistle (*Onopordum acanthium*), hoary cress (*Cardaria draba*), and black henbane (*Hyoscyamus niger*) are located west of the Project Area in the Pequop Mountain range along existing roads. The Scotch thistle infestation is less then four acres in size and is located in Section 29, T. 37 N., R. 66 E. The hoary cress infestation is approximately nine acres in size and is located in Section 6, T. 36 N., R. 66 E., and the black henbane infestation is 0.25 acre in size and is located in Section 22, T. 36 N., R. 66 E. (personal communication, Mark Coca, BLM Weed Specialist, February 5, 2008).

3.2.3.2 Environmental Consequences

New surface disturbance as a result of the Project would increase the potential for and promote the establishment and spread of invasive, nonnative, and noxious weeds. These impacts would be low because there are no known invasive species infestations in the Project Area and BMPs would be implemented to avoid the introduction of invasive species into the Project Area. BMPs would include the following: concurrent reclamation efforts; operator control; removal of invasive, nonnative, and noxious weeds on reclaimed areas; washing of heavy vehicles prior to entering the Project Area; and avoiding known areas of invasive, nonnative, and noxious weeds during periods when the weeds could be spread by vehicles.

The BLM and NWG would cooperate to inventory and monitor noxious weeds within areas of Project-related disturbance within the Project Area. NWG would monitor and treat any noxious weed infestations that resulted from ground disturbing activities within the Project Area for at least three years following the treatment of the infestation until reclamation is completed. Treatments would be permitted, applied, and recorded per BLM policy. The BLM and NWG would cooperate to monitor the effectiveness of treatments on noxious weeds. In addition, the reclamation bond would not be released until all Project related noxious weeds are eliminated.

3.2.4 Wildlife

3.2.4.1 Affected Environment

The wildlife species that inhabit the Project Area are typical of the arid/semi-arid environment in the central Great Basin and were identified by Enviroscientists during a biological survey conducted in July 2006. These wildlife species include mammals such as mule deer, coyote (*Canis latrans*), desert cottontail (*Slyvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), woodrat (*Neotoma* sp.), chipmunk (*Tamias* spp.), long-tailed weasel (*Mustela frenata*), golden-mantled ground squirrel (*Spermophilus lateralis*), deer mouse (*Peromyscus maniculatus*), kangaroo rat (*Dipodomys* spp.), and least chipmunk (*Tamias minimus*); and reptiles such as the fence (*Sceloporus occidentalis*) and sagebrush lizards (*Sceloporus graciosus*). Bats are discussed under Special Status Species in Section 3.2.4.

Birds

Birds in the Project Area and vicinity include the mountain bluebird (*Sialia currucoides*), morning dove (*Zenaida macroura*), sage sparrow (*Amphispiza belli*), lark sparrow (*Chondestes grammacus*), piñon jay (*Gymnorhinus cyanocephalus*), common nighthawk (*Chordeiles minor*), loggerhead shrike (*Lanius ludovicianus*), mountain chickadee (*Poecile gambeli*), juniper titmouse (*Baeolophus ridgwayi*), sage thrasher (*Oreoscoptes montanus*), cliff swallow (*Petrochelidon pyrrhonota*), Brewer's blackbird (*Euphagus cyanocephalus*), common raven (*Corvus corax*), northern flicker (*Colaptes auratus*), chipping sparrow (*Spizella passerina*), chukar (*Alectoris chukar*), western meadowlark (*Sturnella neglecta*), blue-gray knatcatcher (*Polioptila caerulea*), Clark's nutcracker (*Nucifraga columbiana*), green-tailed towhee (*Pipilo chlorurus*), gray flyatcher (*Empidonax wrightii*), black-throated sparrow (*Amphispiza bilineata*), black-throated gray warbler (*Dendroica nigrescens*), vesper sparrow (*Pooecetes gramineus*), rock wren (*Salpinctes obsoletus*), gray vireo (*Vireo vicinior*), bushtit (*Psaltriparus minimus*), and house finch (*Carpodacus mexicanus*).

Raptors

The following seven species of raptors were observed in or near the Project Area: turkey vulture (*Cathartes aura*); red-tailed hawk (*Buteo jamaicensis*); Cooper's hawk (*Accipiter cooperii*); prairie falcon (*Falco mexicanus*); American kestrel (*Falco sparverius*); burrowing owl (*Athene cunicularia*); and one owl that could not be positively identified. No raptor nests were found in or near the Project Area; however, the Cooper's hawk, American kestrel, and burrowing owl appear to be nesting in or near the Project Area.

A road-killed fledgling burrowing owl was found on the main south-trending access road (Interstate 80, Exit 378) north and outside of the Project Area. The owl was freshly killed and still had active lice. An intensive search of potential nesting habitat in the vicinity of the dead owl was conducted. No nest sites or burrowing owl sign were located. No burrowing squirrels were noted in the area. White-tailed antelope ground squirrels (*Ammospermophilus leucurus*) are located farther south along the main road. However, no burrowing owls were found in these areas.

During the raptor survey in July 2006, a drowned owl was found in the second of three troughs at Long Canyon Spring. The owl's body measured three inches in length and the head was less than two inches in length. No other measurements (e.g., wing length) were taken. No ear tufts were visible and eye color could not be determined. The photographs were submitted by email to two Nevada Division of Wildlife (NDOW) biologists for identification (Jenni Jeffers, Fallon, and Pete Bradley, Elko). The owl could be either a northern saw-whet (*Aegolius acadicus*) or a northern pygmy owl (*Glaucidium gnoma*). Based on head size, short tail, light face, and small body size, the owl is most likely a northern saw-whet. Habitat affinities of the two species do not differ significantly enough to rule out occurrence of either species. The habitat in the vicinity of the troughs consists primarily of sagebrush.

Mule Deer

Mule deer occur throughout the Elko district. The NDOW conducted post-season survey flights of the Northeastern Elko County area, Units 071 through 079 and 091, in December 2006. A

total of 2,284 mule deer was classified during the survey with a resulting ratio of 29 bucks/100 does/57 fawns. The buck ratio was well above the previous ten-year average of 23 bucks/100 does. The fawn ratios were lower than the ten-year average of 68 fawns/100 does. Spring surveys were conducted in early March. A total of 1,565 mule deer was classified during the survey and yielded a ratio of 35 fawns/100 adults or 45 fawns/100 does (NDOW 2007).

The deer in these unit groups have been reduced following wildland fires that have occurred in the area since 1999. Invasive weeds have invaded some of the burned areas and in areas where perennial grasses and forbs are found, in time the shrubs are expected to recover to pre-burn levels.

The Project Area is located within known mule deer winter range for the Area 7 deer herd. There is a migration of mule deer north and west of the Pequop Mountains through the Snake Mountains in the vicinity of the Project Area. Historic studies have documented that the deer wintering in the Pequop Mountains have summer ranges to the north and west in the Jarbidge Mountains. Deer from the Jarbidge Mountains, located in NDOW Management Unit 072, and the Snake Range, located in NDOW Management 075, migrate to the south and east in the fall, through NDOW Management Unit 077 and onto their winter ranges located in NDOW Management Unit 078. Unlike other deer migrations in northeastern Nevada, this migration begins before winter weather forces the deer to migrate. Typically, the migration southward begins in early October. The deer arrive on the winter ranges sometime before the end of October or the early part of November. The deer then remain on the winter ranges until early April when they begin their return migration to the summer ranges in and around the Project Area. Does and fawns usually migrate first followed later by the mature bucks (personal communication, Rory Lamp, NDOW Biologist, November 21, 2007). During the migration, a number of deer are struck by vehicles on Highway 93 and I-80. The NDOW and NDOT are working on projects to reduce the number of deer mortality from vehicles. Additional data on deer/vehicle incidents is discussed in Section 3.4 under cumulative impacts.

Bighorn Sheep and Pronghorn Antelope

Although not identified directly in the field survey, there is potential for bighorn sheep (*Ovis canadensis*) and pronghorn antelope (*Antilocarpa americana*) to utilize the Project Area. A small portion on the east side of the Project Area overlaps with year-round antelope range. An even smaller portion on the west side of the Project Area overlaps with summer antelope range. The year round and summer antelope ranges are extensive throughout the area and no antelope signs were noted during the biological survey of the Project Area (Enviroscientists 2006); therefore, it is unlikely that antelope regularly utilize this area. The western half of the Project Area overlaps with potential bighorn sheep range. As with the antelope, no signs were recorded during the biological survey of the Project Area and it is unlikely that bighorn sheep utilize this area.

3.2.4.2 Environmental Consequences

Direct impacts to wildlife would consist of temporary habitat loss and disturbance from human activity and noise. Approximately 64.93 acres of existing wildlife habitat would be temporarily impacted by exploration activities over a 14 year period.

Wildlife sensitive to human activity and noise could be temporarily displaced as a result of the Project. Construction of roads and drill pads and the operation of drilling equipment could disturb wildlife due to the presence of humans and by creating noise and dust. Wildlife foraging activities within the Project Area could continue since a maximum of five drill rigs would be operating at one time, in diverse locations, allowing wildlife to move around and between Project activities. The animals could still be frightened by noise and not utilize the area during drilling. Wildlife habitat fragmentation would be unlikely to occur because the drill program would be dispersed over the 2,114-acre Project Area with a maximum of 64.93 acres (or three percent) of disturbance over the life of the Project. Therefore, the Project would have minimal direct impacts on wildlife species.

No long-term impacts to wildlife habitat are likely to occur since reclamation and reestablishment of vegetation would take place between one and three years after Project completion.

Indirect impacts to wildlife would occur due to the temporary loss of vegetation as a result of Project-related surface disturbance. There would be a long-term improvement of habitat in the Project Area as surface disturbance is reclaimed and revegetated, and a greater amount of herbaceous species becomes available for wildlife foraging.

NWG would not conduct surface disturbing activities when snow conditions result in mule deer using the Project Area as winter habitat. Surface disturbing activities would not take place until snow conditions allowed. These seasonal restrictions on creating new surface disturbance would be implemented in coordination with BLM wildlife specialists in response to site-specific, on-the-ground conditions.

Impacts as a result of Project activities are expected to be similar for all wildlife species encountered in the Project Area. Any disturbance to mule deer, coyotes, rodents, and birds would likely be limited to temporary auditory and/or visual perturbation of individuals in or near the Project Area. Individuals foraging in the Project Area during exploration activities would likely leave the immediate area resulting in a temporary spatial redistribution of individuals or habitat-use patterns during the Project; this would not be a long-term effect since there is undisturbed and suitable habitat around the Project Area. If displaced animals move into habitat already at carrying capacity, there could be a higher mortality rate among the displaced individuals and an impact to the resident population. This in turn would cause a reduction of viable young at least for the next breeding season in the area. The disturbance due to Project-related activities would be short term. No long-term impacts are likely to occur since reclamation and reestablishment of vegetation would take place within several years of Project completion. The quality, quantity, and distribution of suitable wildlife habitat are not expected to be substantially altered by Project implementation. A minor increase in traffic would occur; however, the likelihood of deer-vehicle collisions would be minimized by the speed limit restrictions in the Project Area.

3.2.5 Special Status Species

BLM policy for management of special status species is in the BLM Manual Section 6840. Special status species include the following:

- Federally Threatened or Endangered Species: Any species that the United States Fish and Wildlife Service (USFWS) has listed as an endangered or threatened species under the Endangered Species Act (ESA) throughout all or a significant portion of its range.

- Proposed Threatened or Endangered Species: Any species that the USFWS has proposed for listing as a federally endangered or threatened species under the ESA.

- Candidate Species: Plant and animal taxa that are under consideration for possible listing as threatened or endangered under the ESA.

- BLM Sensitive Species: Species 1) that are currently under status review by the USFWS; 2) whose numbers are declining so rapidly that federal listing may become necessary; 3) with typically small and widely dispersed populations; or 4) that inhabit ecological refugia or other specialized or unique habitats.

- State of Nevada Listed Species: State-protected animals that have been determined to meet BLM's Manual 6840 policy definition.

Nevada BLM policy is to provide State of Nevada listed species and Nevada BLM sensitive species with the same level of protection as is provided candidate species in BLM Manual 6840.06C. Per wording in Table IIa in BLM Information Bulletin (IB) No. NV-2003-097, Nevada protected animals that meet BLM's 6840 policy definition are those species of animals occurring on BLM-managed lands in Nevada that are: 1) 'protected' under authority of the NAC; 2) have been determined to meet BLM's policy definition of "listing by a state in a category implying potential endangerment or extinction;" and 3) are not already included as federally listed, proposed, or candidate species.

3.2.5.1 Affected Environment

No special status plant species were identified by the BLM or Nevada Natural Heritage Program (NNHP) as occurring within the Project Area. Therefore the following discussion refers to special status animal species only.

The biological survey that Enviroscientists conducted in July 2006 did not observe the sensitive species identified by BLM as potentially occurring in the Project Area except for pygmy rabbits as discussed below. Raptors were observed in the Project Area, but no raptor nests were found. Enviroscientists has provided BLM with a report detailing the results of the survey (Enviroscientists 2006).

Bats

A special status bat survey conducted in the Project Area in September 2007 (Enviroscientists 2007), detected the following species: little brown myotis (*Myotis lucifugus*); silver-haired bat (*Lasionycteris noctivagans*); long-eared myotis (*Myotis evotis*); and Brazilian free-tailed bat (*Tadaria brasiliensis*). The survey also potentially detected the fringed myotis (*Myotis thysanodes*) and the hoary bat (*Lasiurus cinereus*). The quality of the recordings was not sufficient for positive identification of the fringed myotis and hoary bat.

Greater Sage-Grouse

Although no greater sage-grouse (*Centrocercus urophasians*) or their sign were identified during the wildlife surveys, the BLM and NDOW identified the Project Area as occurring within a greater sage-grouse area of concern.

The Sheep Complex, Big Springs, and Owyhee Grazing Allotments, Draft Environmental Impact Statement, Sensitive Bird Species, prepared by the BLM, Elko District Office, Nevada, December 2005, noted that greater sage-grouse could utilize part of the Project Area. The nearest greater sage-grouse leks and strutting grounds are approximately four miles south of the Project Area. The Project Area lies between lower elevation and upper elevation summer greater sage-grouse habitat and is located in BLM and NDOW designated crucial winter habitat. Winter and nesting habitat for greater sage-grouse is located immediately east of the Project Area.

Pygmy Rabbits

Pygmy rabbits (*Brachylagus idahoensis*) are typically found in areas of tall dense sagebrush (*Artemisia* spp.) cover, and are highly dependent on sagebrush to provide both food and shelter throughout the year. Their diet in the winter consists of up to 99 percent sagebrush. Pygmy rabbits, their sign, and burrows were observed along the existing access road from Interstate 80 in the Project Area. Suitable habitat consisting of mature big sagebrush (*Artemisia tridentata*) is present on both sides of the access road into the Big Springs Ranch.

Ferruginous Hawks

No ferruginous hawks (*Buteo regalis*) or their nests were noted within one mile of the Project Area. Potentially suitable nesting habitat for ferruginous hawks is present in the eastern portion of the Project Area. Nest sites are normally located at the interface between piñon and/or juniper woodland and open sagebrush. Nest trees typically overlook broad expanses of open sagebrush or grassland.

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*), a BLM sensitive species, are found in Alaska and Canada south into southern Florida and the Baja peninsula in Mexico. Nesting distribution is largely restricted to coastal areas, lakes, and rivers. Concentrations of fish, carrion, and waterfowl on wildlife refuges support the majority of the nation's wintering bald eagles. In Nevada and western Utah, bald eagles congregate in valley areas that have large populations of black-tailed jackrabbits (NDOW 1985). One bald eagle nest has been reported in northeastern Nevada and one nest has been reported near Lahontan Reservoir in western Nevada.

Although no bald eagle nests or roosts have been observed in the Project Area, bald eagles could winter in the Project Area.

Mattoni's Blue (Butterfly)

BLM file data and the NNHP indicate that Mattoni’s blue (*Euphilotes pallescens mattonii*), a BLM sensitive species, has been observed in the Pequop Mountains in Section 27, T. 37 N., R.

65 E. (Nevada Natural Heritage Program letter dated May 8, 2000). The elevational range of the species is currently known to be 4,980 to 6,560 feet amsl. The Mattoni's blue is found in association with slender buckwheat (*Eriogonum microthecum* var. *laxiflorum*). This buckwheat is common in mountain habitats, occurring between 5,000 to 10,500 feet amsl in piñon-juniper woodlands.

A survey was conducted for Mattoni's blue and slender buckwheat in July 2006. Two species of blue butterflies were observed in the Project Area; however, neither were Mattoni's blue. The following 12 butterfly species were identified in and near the Project Area: spring azure (*Celastrina argiolus*), small wood nymph (*Cercyonis oetus*), orange sulfur (*Colias eurytheme*), dotted blue (*Euphilotes enoptes*), skipper (*Hesperia* spp.), western admiral (*Limenitis weidemeyerii*), mourning cloak (*Nymphalis antiopa*), western tortoise shell (*Nymphalis californica*), western swallowtail (*Papilio zelicaon*), unidentified white (*Pieris* spp.), zerene fritillary (*Speyeria zerene*), and red admiral (*Vanessa atalanta*).

3.2.5.2 Environmental Consequences

Direct impacts to bats, pygmy rabbits, greater sage-grouse, and other special status animal species sensitive to human activity and noise could include temporary displacement as a result of the Project. Construction of roads and drill pads and the operation of drilling equipment could disturb special status animal species due to the presence of humans and by creating noise and dust. Special status animal species foraging activities within the Project Area could continue since a maximum of five drill rigs would be operating in diverse locations at one time, allowing special status animal species to move around and between Project activities. The animals could still be frightened by noise and not utilize the area during drilling. Habitat fragmentation would be unlikely to occur because the drill program would be dispersed over the 2,114-acre Project Area with a maximum of 64.93 acres (or three percent) of disturbance over the life of the Project. Impacts to special status animal species would be lessened by reclaiming access and drill roads, and drill sites no longer needed for future exploration as quickly as possible. No long-term impacts to habitat are likely to occur since reclamation and reestablishment of vegetation would take place between one and three years after Project completion.

The direct disturbance of big sagebrush habitat within the 2,114 acre Project Area would preclude use by sensitive species, such as greater sage-grouse and pygmy rabbits. Destruction or disruption of an active nest or burrow may affect individual success, but is not expected to contribute to any detectable loss of viability for the regional population of these species. The disruption of habitat use could extend until operations cease. Lost habitat would not be replaced until the disturbed areas are successfully reclaimed. Suitable pygmy rabbit habitat is located outside of proposed Project activities, along the access road from I-80 into the Project Area and in the vicinity of the access road. Although no Project related surface disturbance is proposed in pygmy rabbit habitat, there is potential for pygmy rabbit mortality along the access road. Direct impacts would be minimized by observing speed limit restrictions in the Project Area.

There would be no indirect impacts to special status animal species as a result of the Project.

3.2.6 Migratory Birds

3.2.6.1 Affected Environment

The migratory birds detected in the Project Area and vicinity during a July 2006 wildlife survey are listed in Table 3.2-1 (Enviroscientists 2006).

3.2.6.2 Environmental Consequences

The Project would result in up to 64.93 acres of surface disturbance, which could potentially result in the destruction of active nests or disturb the breeding behavior of migratory bird species. In addition, NWG is aware that disturbance of an active nesting site is prohibited by the Migratory Bird treaty Act (MBTA) and has committed to conducting annual nest surveys by a qualified biologist within potential breeding habitat prior to any surface disturbance activities that would be conducted during the avian breeding season (April 1 through July 31). If nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated and the buffer area would be avoided to prevent destruction or disturbance to nests until they are no longer active.

Table 3.2-1: Migratory Bird Species Located In or Near the Project Area

Common Name	Scientific Name	PIF[1] "Long term Planning and Responsibility Species"	NVPIF[2] "Priority Species"	Habitat Associations*
Mountain bluebird	*Sialia currucoides*	Yes	No	Found in coniferous forest edges, open woodlands, and in the transitional area between piñon-juniper woodlands and sagebrush.
Mourning dove	*Zenaida macroura*	No	No	Found in open woodlands, forest edges, cultivated lands with scattered trees and bushes, parks and suburban areas, arid and desert country. Nest in trees or shrubs, sometimes on a stump or rock or on a ledge of a building, or on ground. May nest in an old nest of another species or build its own platform of twigs.
Sage sparrow	*Amphispiza belli*	Yes	Yes	Found in big sagebrush and associated shrub species. Nest close to and on the ground under shrubs or in grass tufts.

Common Name	Scientific Name	PIF[1] "Long term Planning and Responsibility Species"	NVPIF[2] "Priority Species"	Habitat Associations*
Lark sparrow	*Chondestes grammacus*	No	No	Found in shortgrass, mixed-grass, and tallgrass prairie; parkland; sandhills; barrens; old fields; cultivated fields; shrub thickets; woodland edges; shelterbelts; parks; riparian areas; brushy pastures; and overgrazed pastures. Nest on ground near plant or bush or in low tree or bush. May use old nest of mockingbird or thrasher.
Piñon jay	*Gymnorhinus cyanocephalus*	No (Management)	Yes	Found almost exclusively in piñon-juniper and occasionally wander into sagebrush and Joshua tree.
Common nighthawk	*Chordeiles minor*	No	No	Found in open habitats, from shrub-steppe, grassland, and agricultural fields to cities, clear-cuts, and burns, as long as there are abundant flying insects and open gravel surfaces for nesting.
Loggerhead shrike	*Lanius ludovicianus*	No	Yes	Found in open shrublands, including Mojave scrub, Joshua tree, salt desert scrub, sagebrush, lowland riparian, and montane riparian.
Mountain chickadee	*Poecile gambeli*	No	No	Found in dry coniferous forests, especially ponderosa and lodgepole pines. During the summer they can also be found in high-elevation aspen forests. In winter, they sometimes inhabit juniper stands and river bottoms.
Sage thrasher	*Oreoscoptes montanus*	Yes	Yes	Found in big sagebrush stands, in greasewood flats, and montane sagebrush steppe. Nest on the ground or in the shrub canopy, depending on greatest overhead cover.
Cliff swallow	*Petrochelidon pyrrhonota*	No	No	Found in open canyons and river valleys with rocky cliffs for nesting, under bridges and freeways, farmland, wetlands, prairies, residential areas, road cuts and over open water. Require a source of mud for their nests.

Common Name	Scientific Name	PIF[1] "Long term Planning and Responsibility Species"	NVPIF[2] "Priority Species"	Habitat Associations*
Brewer's blackbird	*Euphagus cyanocephalus*	No	No	Found in agricultural fields that have brushy edges, open areas including parks, campgrounds, parking lots, wetlands, and suburban and urban settings.
Common raven	*Corvus corax*	No	No	Found in dense forests, open sagebrush country, and alpine parklands.
Northern flicker	*Colaptes auratus*	No	No	Found in open forest, both deciduous and coniferous, open woodland, open situations with scattered trees and snags, riparian woodland, pine-oak association, parks. Nests in dead tree trunk, or stump, or dead top of live tree; sometimes nests in wooden pole, building or earth bank.
Chipping sparrow	*Spizella passerina*	No	No	Found in woodlands edges, dry open woodlands, in pine-oak forests, along river and lakes shores, on lawns, grassy fields, orchards and parks.
Western meadowlark	*Sturnella neglecta*	No	No	Found in grasslands, savanna, cultivated fields, and pastures. Summers in grasslands and valleys; ranges up to higher elevations in foothills and open mountain areas. Female builds nest on dry ground.
Clark's nutcracker	*Nucifraga columbiana*	Yes	No	Found in piñon-juniper woodlands, and in higher elevation coniferous forests including ponderosa/jeffrey pine forest, red fir forest, and spruce-fir forests.
Green-tailed towhee	*Pipilo chlorurus*	Yes	No	Found in mixed-species shrublands of intermediate and higher elevations, including piñon-juniper woodlands, montane sage steppe, and aspen. Nest on or near the ground under dense shrub cover.
Gray flycatcher	*Empidonax wrightii*	Yes	Yes	Found in tall sagebrush and bitterbrush stands and the sagebrush shrubland/piñon juniper transitional zone. Nest in tall sagebrush or conifers.

Common Name	Scientific Name	PIF[1] "Long term Planning and Responsibility Species"	NVPIF[2] "Priority Species"	Habitat Associations*
Black-throated sparrow	*Amphispiza bilineata*	No	No	Found in desert and shrubland/chaparral. Nests are well-concealed at the base of a bush or cactus, on or near the ground.
Black-throated gray warbler	*Dendroica nigrescens*	Yes	Yes	Found mostly in piñon-juniper woodlands, and less frequently in mountain mahogany and montane riparian woodlands.
Vesper sparrow	*Pooecetes gramineus*	No	Yes	Found in sagebrush steppe and dry-grassland associated species during breeding. Nest on the ground under vegetative cover.
Rock wren	*Salpinctes obsoletus*	No	No	Found in bare rock, talus, scree, on cliffs, and in the desert and shrubland/chaparral. Nest in gopher burrows, rock crevices, cavities under rocks, adobe buildings, etc.
Gray vireo	*Vireo vicinior*	Yes	No	Found in open piñon-juniper woodlands. Nest in west or north facing trees in forked, lateral branches.
Bushtit	*Psaltriparus minimus*	No	No	Found in woodlands and scrub habitat with scattered trees and shrubs, in brushy streamsides, piñon-juniper, chaparral and pine-oak associations.
House finch	*Carpodacus mexicanus*	No	No	Found in arid scrub and brush, thornbush, oak-juniper, pine-oak associations, chaparral, open woodlands, towns, cultivated lands, and savanna. Nest on ledge, tree branches, shrub, and cacti.
Turkey vulture	*Cathartes aura*	No	No	Found in forested and open situations, from lowlands to mountains.
Red-tailed hawk	*Buteo jamaicensis*	No	No	Found in wide variety of open woodland and open country with scattered trees, rarely in dense forest
Cooper's hawk	*Accipiter cooperii*	No	Yes	Nest in old, tall deciduous tree groves, such as cottonwood stands.

Common Name	Scientific Name	PIF[1] "Long term Planning and Responsibility Species"	NVPIF[2] "Priority Species"	Habitat Associations*
Prairie falcon	*Falco mexicanus*	No	Yes	Forage in sagebrush, salt desert, wet meadows, and some agricultural areas; nest in cliff ledges with overhead cover.
American kestrel	*Falco sparverius*	No	No	Found in various open and semi-open habitats. Nest in natural holes in trees and abandoned bird nests.
Burrowing owl	*Athene cunicularia*	No	Yes	Found in valley bottoms. Nest primarily in abandoned burrows of ground squirrels, badgers, and coyotes.

[1]Partners in Flight
[2]Nevada Partners in Flight
*References: NatureServe 2008 and Great Basin Bird Observatory 2005.

3.2.7 Range Resources

3.2.7.1 Affected Environment

Authorized use in the Project Area is 10,150 animal unit months (AUMs) in the East Big Springs Allotment and 3,651 AUMs in the West Big Springs Allotment. In addition, there are 6,488 suspended AUMs. A portion of the suspended AUMs can be restored to active use for up to a total of 12,175 AUMs on the East Big Springs Allotment and 4,788 AUMs on the West Big Springs Allotment. The balance of the suspended AUMs (4,423 AUMs in East Big Springs and 597 AUMs in West Big Springs) are "historic suspended", meaning that they are still carried on the books but are not available for reinstatement without a further evaluation of range conditions. The Project Area is also within the following pastures, which have been grouped together by the BLM for administrative reasons: Payne Basin, Six Mile, and Long Canyon. The combined AUMs for these pastures are 756. For the purposes of this analysis and based on the acres contained in the East Big Springs Allotment (305,736 acres), there would be an average of approximately 29 acres per AUM.

3.2.7.2 Environmental Consequences

Disturbance as a result of the Project is approximately 64.93 acres and could impact up to 2.6 AUMs. However, due to the small and dispersed nature of the surface disturbance resulting from phased exploration activities, livestock could continue grazing in the area and the impact of the Project activities on range resources would be minimal. Also, if access is required through a livestock fence, NWG would repair the livestock fence with a temporary gate.

Indirect impacts to livestock would occur as a result of short-term temporary loss of vegetation as a result of Project-related surface disturbance. There would be a long-term improvement of habitat in the Project Area as surface disturbance is reclaimed and revegetated, and a greater amount of herbaceous species are available for livestock foraging.

3.2.8 Recreation

3.2.8.1 Affected Environment

Recreational use in the Project Area consists of hunting, Christmas tree gathering, motorcycle use and mountain bike racing. No developed recreational sites are located in or near the Project Area; however, there are established mountain bike and motorcycle race course routes adjacent to and within the Project Area. Hunters and motorcyclists utilize the road accessing Big Springs Ranch and the road through Long Canyon for recreation access.

3.2.8.2 Environmental Consequences

The Project is consistent with the BLM's multiple-use management. The Project could result in short-term impacts from noise and visual modifications associated with exploration activities. Project activities, which include approximately 64.93 acres of surface disturbance, would have a minimal and temporary impact to recreational opportunities because Project activities would be localized and not block access on roads to and through the Project Area.

3.2.9 Water Resources

3.2.9.1 Affected Environment

Surface Water

The Project Area is located in the Goshute Valley Hydrographic Basin (No. 187) within the Central Hydrographic Region. The drainages within the Project Area are formed from ephemeral streams supplied with runoff from rains and winter snow pack. Drainage flows generally to the east from the Pequop Range toward Hardy Creek and Big Springs. The ephemeral drainages typically infiltrate into the basin prior to reaching Hardy Creek or Big Springs and there are no channels (beds and banks) connecting these ephemeral drainages to Hardy Creek. In addition, these ephemeral drainages do not exhibit a vegetation response that differs from the vegetation in the adjacent upland areas. Long Canyon Spring is an ephemeral water feature 0.25 mile west of the Project Area. The nearest known source of permanent surface water is Johnson Springs (the principal discharge point of which is known as Big Springs and labeled as such on Figure 2.1.1), which is located on the Big Springs Ranch in the southwest quarter of the southeast quarter of Section 28 T. 36 N., R. 66 E. .Both of these springs are outside of the Project Area. This drainage basin supplies part of West Wendover's drinking water supply through ground water production wells and from Johnson Springs. The Project Area is within the West Wendover Source Water Protection Area for Johnson Springs

Johnson Springs is located in the Goshute Valley. The recharge to aquifers in Goshute Valley is mainly a result of infiltration of precipitation and ephemeral surface flows from the mountains (Aqua Engineering 2001). Water quality is typically good in the Goshute Valley aquifers near the mountain front but deteriorates toward the valley floor (Eakin et. al 1949). For this reason (and possibly due to permeability considerations), water is typically withdrawn from Goshute Valley aquifers along the west and east valley margins at the base of the Toana and Pequop Ranges.

The Administrative Authority Wendover Pipeline Company rehabilitated Johnson Spring approximately three years ago. A new pump station was installed and cottonwoods were cleared from the spring area (personal communication, Craig Neeley, Engineer, Aqua Engineering and City of West Wendover, November 30, 2007). According to Craig Neeley (personal communication) the minimum flows from Johnson Spring range from 1,200 to 2,100 gallons per minute (gpm). This water is delivered to the City of West Wendover via a transmission pipeline.

Table 3.2-2 shows water quality data for Johnson Springs. The sample collected in October 2000 was taken approximately one month prior to any drilling activities and therefore, provides baseline water quality data. In all four samples, the water quality met drinking water standards. The four samples show consistent water quality, with only minor variation for a few constituents.

Table 3.2-2: Water Quality Samples Collected at Johnson Springs

Description:		**Big Springs**	**AuEx-1**	**BS #1-4**	**BSR**
Name of Certified Lab	Standards (mg/L)*	AAL	SEM	WET	WET
Lab Reference #		EV5810	70546	0712119	0805067
Sample Date		10/4/2000	8/31/2005	12/13/2007	5/6/2008
Lab Test Date		10/16/2000	9/9/2005	12/28/2007	5/30/2008
Sampled By		C. Postlethwaite	E. Struhsaker	.W. Thompson	W. Thompson
Acidity		4	NS***	NS***	NS***
Alkalinity (Total as $CaCO_3$)		156	165	200	160
Aluminum	0.2	<0.020	<0.05	<0.045	<0.045
Antimony	0.146	<0.003	<0.002	<0.0025	<0.0025
Arsenic	0.01	<0.005	<0.002	<0.005	<0.0050
Barium	2	0.168	0.17	0.16	0.16
Beryllium	0.004	<0.002	<0.002	<0.0010	<0.0010
Alkalinity/Bicarbonate		156	165	240	200
Bismuth		<0.020	<0.1	<0.10	<0.10
Boron		<0.10	<0.05	<0.10	<0.10
Cadmium	0.005	<0.002	<0.002	<0.0010	<0.0010
Calcium		42.5	41	41	40
Alkalinity/Carbonate		ND**	<2	<1.0	<1.0
Chloride	400	5	3	3	6
Chromium	0.1	<0.005	<0.002	<0.005	<0.0050
Cobalt		<0.020	<0.002	<0.010	<0.010
Copper	1.3	<0.010	<0.002	<0.050	<0.050
Cyanide, WAD		<0.025	<0.005	<0.010	<0.010
Fluoride	2 - 4	0.20	0.1	<0.10	0.13
Gallium		<0.050	<0.1	<0.10	<0.10
Alkalinity/Hydroxide		ND**	<2	<1.0	<1.0
Iron	0.6	<0.020	<0.05	<0.010	<0.010
Lanthanum		NS***	<0.05	NS***	NS***
Lead	0.015	<0.007	<0.002	<0.010	<0.010
Lithium		<0.010	<0.1	<0.10	<0.10
Magnesium	150	14.9	15	16	15
Manganese	0.10	<0.005	<0.002	<0.0050	<0.0050
Mercury	0.002	<0.0005	<0.0002	<0.00010	<0.00010
Molybdenum		<0.020	<0.002	<0.010	<0.010
Nickel	0.1	<0.020	<0.002	<0.010	<0.010

Description:		Big Springs	AuEx-1	BS #1-4	BSR
Nitrate-N	10	0.70	0.53	<1.0	<1.0
Nitrite-N		<0.1	NS***	<0.010	0.06
Nitrate-N + Nitrite-N		0.70	NS***	NS***	NS***
pH (+/- 0.1 units)	6.5 - 8.5	7.68	8.46	7.76	7.58
pH Temperature (°C)		NS***	21.1	NS***	NS***
Phosphorous, total		0.22	<0.02	<0.50	<0.50
Potassium		1.36	2.4	1.4	1.4
Scandium		<0.005	<0.05	<0.10	<0.10
Selenium	0.05	<0.010	<0.01	<0.0050	<0.0050
Silver	0.1	<0.010	<0.002	<0.0050	<0.0050
Sodium		5.01	5.9	4.7	5.0
Strontium		0.140	0.17	0.17	0.17
Sulfate	500	12.6	11	11	14
Thallium	0.002	<0.001	<0.001	<0.0010	<0.0010
Tin		<0.050	<0.1	<0.10	<0.10
Titanium		<0.0050	<0.05	<0.10	<0.10
Vanadium		<0.020	<0.002	<0.010	<0.010
Total Dissolved Solids	1000	198	170	180	160
Zinc	5	<0.050	<0.02	<0.010	<0.010

*All values in mg/L unless otherwise noted.
**Not Determined
***Not sampled

Ground Water

The West Wendover Drinking Water Source Protection Plan (Aqua Engineering 2001) does not have any information about ground water quality in the Project Area. NWG does not have any ground water quality data because no monitoring wells have been drilled yet.

3.2.9.2 Environmental Consequences

The Project activities are unlikely to have direct impacts to water resources because the activities have not and would not occur within 100 feet of Johnson Springs. It is unlikely that Notice-level Project activities have had any effect on Johnson Springs based on the fact that water samples from the spring have met drinking water standards and show only minor variability of a few constituents starting in October 2000, prior to commencement of drilling activities, to as recently as May 2008 (Table 3.2-2). As outlined in Section 2.1.11 (Environmental Protection Measures), NWG has committed to a number of environmental protection measures in consultation with the City to avoid or mitigate potential impacts to Johnson Spring .

NWG's committment to construct a replacement water well provides the City with a guarantee that there would be no disruption of the City's water supply in the event that the mineral exploration drilling were to impact Johnson Springs. As an additional safeguard, NWG has agreed that it will not drill below the elevation of Johnson Springs until the replacement water well has been constructed. NWG will also drill and maintain four water-level monitoring wells. The location of these monitoring wells is shown on Figure 2.1.1.

Construction of the replacement water well and installation of the four water-level monitoring wells and the turbidity meter, the increased frequency of water quality sampling of Johnson

Springs, and the hydrology studies described in Section 2.1.11 would have a short-term and long-term beneficial impact on the Administrative Authority Wendover Pipeline Company and the City of West Wendover. The replacement water well would upgrade and improve the City's overall water supply system by augmenting the number of sources from which water could be obtained and increasing the amount of available water. It also would also allow the City to more fully utilize its existing water rights by completing and using the new water production well. The installation of the four water-level monitoring wells, real-time turbidity monitoring and increased frequency of water quality sampling at Johnson Springs are anticipated to provide an enhanced understanding of the hydrology of Johnson Springs and how to best protect the water supply from Johnson Springs. The Goshute Valley generalized hydrologic study would enhance the City's understanding of the adequacy of the valley aquifer in the northern part of Goshute valley to supply water to the City's Shafter wells.

A Spill Contingency Plan is included in the Plan and would be implemented to control drilling fluids and petroleum products. All containers of hazardous substances would be labeled and handled in accordance with NDOT and MSHA regulations (Section 2.1.9). Impacts would be minimal due to the use of nontoxic drilling fluids and adherence to NAC 534.4369 and 534.4371.

All drill holes (except those proposed to be completed as monitoring wells) would be plugged prior to the drill rig moving from the drill site in accordance with NRS 534 and NAC 534.4369 and NAC 534.4371 with the exception of drill holes collared with a reverse-circulation drill rig and completed with a core rig, which would be plugged prior to the core rig moving from the drill site. To date, water has been detected in only one mineral exploration hole drilled in the Project Area. If any future drill hole produces artesian flow, the drill hole would be contained pursuant to NRS 534.060 and NAC 534.378 and would be sealed by the method described in Subsection 2 of NAC 534.4371. If casings are set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420 or the casings would be completely removed from the drill hole and then be plugged according to NAC 534.4369 and NAC 534.4371.

Indirect effects to water resources would be minimized by placement of fabric and/or straw bale (certified weed-free) filter fences below surface disturbance that would be placed upslope of Long Canyon and Johnson Spring to prevent sediment runoff from reaching the spring. There would be no disturbance upslope of Long Canyon Spring.

3.2.10 Soils

3.2.10.1 Affected Environment

Soils in the Project Area are typical of mountain slopes in the north-central Great Basin. Slopes are gentle to steep in gradient and runoff is medium to very high. In general, soil productivity is limited by the relatively short growing season and low levels of precipitation (BLM 1983). Soils in the Project Area were mapped by the Natural Resources Conservation Service (NRCS) as part of preliminary surveys of southeastern Elko County (NRCS unpublished data). The primary soil association underlying the Project Area is the Haunchee-Halacan-Wardbay Association. The characteristics of the soil series comprising this association are outlined in Table 3.2-3. Erosion potential by water is moderate and erosion potential by wind is low to moderate. Soils consist primarily of very gravelly loams, gravelly sandy loams, and gravelly silty loams. These soils are

rated fair to poor for seeding suitability because they are generally shallow, arid, droughty, and have a high volume of coarse fragments on the surface.

3.2.10.2 Environmental Consequences

Surface disturbance associated with the Project would impact up to 64.93 acres of soils in phases over a 14-year period. The soil associations in the Project Area vary from very low to moderate for erosion hazard by water and the associations vary from low to high for erosion hazard by wind (Table 3.2-3).

Exploration activities associated with the Project would increase the erosion potential for wind and water of disturbed soils until reclamation was successfully completed. The potential impacts to soils would be reduced by measures incorporated in the Project design, including the use of waterbars and other BMPs, and the concurrent reclamation of drill pads, sumps, trenches, and drill roads no longer needed for access. Reclamation activities such as regrading, ripping, and revegetation of disturbed areas would minimize soil loss.

3.2.11 Cultural Resources

3.2.11.1 Affected Environment

The area of potential effect (APE) for this Project is defined as the 2,114-acre Project Area, all of which has been inventoried for cultural resources. A Class III cultural resource inventory was completed by ASM Affiliates in September, October, and November 2006 (ASM 2007). Two portions of the Project Area totaling approximately 1,300 acres in Sections 21 and 32 of T. 36 N., R. 66 E. were inventoried. A total of 70 sites was recorded; 15 of which are recommended eligible for listing on the National Register of Historic Places (NRHP) under Criterion D (eligible sites are called historic properties) and deferral of eligibility evaluation to a later date is recommended for 20 sites. The unevaluated sites would be treated as eligible until further investigation is conducted and an official determination of eligibility made. None of the sites are eligible under Criterion A, B, or C.

In 2000, crews from R.K. Vierra and Associates performed a Class III cultural resources inventory of approximately 1,120 acres covering all of Section 29 and portions of Sections 28 and 30, T. 36 N. R. 66 E. (BLM1-2076 – Vierra and Langheim 2000). This inventory resulted in the discovery of 14 archaeological sites and 22 isolated artifacts and features. One site was recommended as eligible for listing on the NRHP and thirteen sites were recommended as being ineligible.

An additional six sites have been recorded by BLM within Section 29. One of these sites may possess qualities required for listing on the National Register, and one other site would require further data collection and, therefore, remains unevaluated. Based on the results of BLM's field reviews, selective reinventory will be done in Sections 28 and 29.

Table 3.2-3: Soils in the Project Area

Association	Soils Series	Range in Depth to Bedrock	Profile Soil Texture	Permeability	Runoff	Erosion Hazard by Water	Erosion Hazard by Wind
Pookaloo-Cavehill-Rock Outcrop Association	Pookaloo	14 to 20 inches	Very gravelly loam	Moderate	Medium to very high	Low	Moderate
Pookaloo-Cavehill-Rock Outcrop Association	Cavehill	20 to 40 inches	Very gravelly silty loam	Moderate	High	Low	Moderate
Pyrat-Automal, very stony-Automal Association	Pyrat	More than 80 inches	Loam, very stony sandy to extremely gravelly course loamy sand	Moderate	Slow to medium	Very low	Moderate
Pyrat-Automal, very stony-Automal Association	Automal	More than 80 inches	Loam, gravelly to extremely gravelly loamy course sand	Slow	High to very high	Very low	Moderate
Haunchee-Halacan-Wardbay Association	Haunchee	10 to 20 inches	Very gravelly loam	Moderate	Medium to very high	Moderate	Low to moderate
Haunchee-Halacan-Wardbay Association	Halacan	10 to 20 inches	Loam, very gravelly to extremely channely	Moderate to high	Very high	Moderate	Low to moderate
Haunchee-Halacan-Wardbay Association	Wardbay	40 to 60 inches	Loam to silty loam, very gravelly to extremely cobbly	Moderate	High	Moderate	Low to moderate
Duffer-Kunzler Association	Duffer	More than 80 inches	Loam, silt to silty clay	Moderately slow	Low to high	Moderate	Moderate
Duffer-Kunzler Association	Kunzler	More than 80 inches	Loam to fine sandy loam	Moderately slow	Medium	Moderate	Moderate
Blimo-Threesee Association	Blimo	More than 80 inches	Loam, sandy to gravelly sandy loam	Slow	Medium to high	Low	Moderate to high
Blimo-Threesee Association	Threesee	More than 80 inches	Loam, very gravelly to very gravelly course sand	Moderate	Slow	Low	Moderate to high

Source: NRCS 2008

The BLM is currently reviewing these reports and has yet to make a formal determination of National Register eligibility for any of the sites or determine Project effects per Section 106 of the National Historic Preservation Act. All cultural resources having potential to qualify for the NRHP would be avoided until Section 106 review is complete.

3.2.11.2 Environmental Consequences

The Project would result in approximately 64.93 acres of ground disturbance over a period of ten years. The proposed exploration drilling could impact historic properties directly as the result of damage incurred by construction activities. Indirect effects can result from improved access to areas within the study area that currently lack good road access and from building roads in close proximity to historic properties. Creation of new or improved access can have substantial and long lasting adverse effects if cultural resources are present. A number of studies (Williams, 1978; Lyneis et al., 1980; Nickens et al., 1981) have shown that increased access leads to both intentional and incidental deterioration of nearby cultural resources. Nickens et al. (1981) found that most archaeological sites within approximately 300 feet (100 meters) of improved roads exhibited evidence of vandalism and/or illegal collection. Sites at considerably greater distances also suffered damage but with less frequency as distance increased (Desjean and Wilson, 1990; Ison et al., 1981; Nickens et al., 1981). With the advent of widespread all-terrain vehicle use in the last decade, the BLM might anticipate that the spread of damage beyond new access roads may now be even greater. However, adverse effects can be mitigated or lessened by designing roads and drill pads to avoid eligible cultural resources, using archaeological monitors, requiring employee training regarding cultural resources, and undertaking data recovery at archaeological sites where other measures are not adequate.

3.2.12 Native American Religious Concerns

3.2.12.1 Affected Environment

In accordance with the National Historic Preservation Act (P.L. 89-665), NEPA, FLPMA, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, and Executive Order 13007, the BLM must provide affected tribes an opportunity to comment and consult on the proposed Project. BLM must attempt to identify locations having traditional, cultural, or spiritual importance and limit, reduce, or possibly eliminate any negative impacts to identified traditional, cultural, spiritual sites, activities, and resources.

A presentation was made by the BLM to the Wells Band of the Te-Moak Tribe of the Western Shoshone and the BLM conducted a field tour with the Wells Band Environmental Department. In addition, consultation letters were mailed to the Te-Moak Tribe of Western Shoshone, Wells Band of the Te-Moak Tribe of Western Shoshone, and the Ibapah Goshute Tribe. Coordination is ongoing. To date, no locations having traditional, cultural, or spiritual importance have been identified.

Cultural and archaeological resources are protected under the Archaeological Resources Protection Act and FLPMA. Therefore, as stated in Section 2.1.11, if any cultural properties, items, or artifacts (e.g., stone tools or projectile points) are encountered during Project activities, NWG would ensure that such items are not collected by their employees or contractors.

Although the possibility of disturbing Native American gravesites within the Project Area is extremely low, inadvertent discovery procedures would be implemented as outlined in Section 2.1.11. The procedures outlined in Section 2.1.11 are in keeping with the Native American Graves Protection and Repatriation Act, section (3)(d)(1), which requires the discovering

individual to notify the land manager of such a discovery in writing and cease all activities until the land manager can respond to the situation.

3.2.12.2 Environmental Consequences

No impacts to Native American Traditional Concerns are anticipated.

3.2.13 Social Values and Economics

3.2.13.1 Affected Environment

The Project is located in Elko County, a county approximately 17,179 square miles in size (U.S. Census Bureau 2007).The closest cities providing a variety of services and lodging are Wells and West Wendover. The population of Elko County was estimated to be 48,339 in 2006 (State of Nevada Demographer 2007). The 2006 population estimates for Wells and West Wendover were 1,449, and 4,871, respectively (State of Nevada Demographer 2007).

The 2000 U.S. Census Bureau unemployment rate for Elko County was four percent (U.S. Census Bureau 2007). The unemployment rate for the State of Nevada for 2000 was also four percent (U.S. Census Bureau 2007). The median household incomes in Elko County and the State of Nevada in 1999 were $48,383 and $44,581, respectively (U.S. Census Bureau 2007).

The city of West Wendover provides a variety of services including restaurants, gas stations, and stores as well as a variety of lodging or housing options. Wells also provides restaurants, gas stations, stores, and lodging options.

A total of 21 people (two geologists, 15 drill crew members, one student worker, and three earthmoving contractors) may be working at any time on the Proposed Action. Drilling activities may occur in two daily shifts. A maximum of 38 employees or contract workers would be required for the duration of the Proposed Action activities. Temporary housing would be secured in Wells or West Wendover.

3.2.13.2 Environmental Consequences

The Project would have beneficial impacts on the local economies as the contract workers would obtain lodging, meals, and supplies in the nearby towns and would most likely be based out of Wells or West Wendover. No additional facilities or housing would need to be constructed and the maximum workforce of 38 persons would not strain the local housing supply or other services. Impacts from the Project would be beneficial to the local economies and temporary.

3.2.14 Visual Resources

3.2.14.1 Affected Environment

Scenic quality is a measure of the visual appeal of a parcel of land. Section 102(a)(8) of the Federal Land Policy and Management Act of 1976 emphasizes protection of the quality of scenic resources on public lands. Section 101(b) of NEPA requires that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans.

The Project Area is located in a Class IV Visual Resource Management (VRM) Class. The objective of this class is to provide for management activities that allow for major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities could dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of such activities through careful location, minimal disturbance and repeating the basic elements of line, form, color, and texture (BLM 1986).

3.2.14.2 Environmental Consequences

The Project would result in short-term visual impacts principally affecting the visual elements of line and color. Horizontal and shallow diagonal lines from drill roads would cause moderate, temporary line contrasts with the natural landscape. Disturbance of vegetation would cause moderate, temporary color contrasts. With successful reclamation of exploration roads and revegetation, long-term visual impacts would be minimized. The effects of the Project on visual resources would be consistent with BLM prescribed Visual Resource Inventory Class IV objectives.

3.3 Effects of the No Action Alternative

As described earlier, under the No Action Alternative, the Proposed Action would not be approved. NWG could continue exploration activities under the approved AuEx Notice (#N-79949) but would be limited to a maximum of five acres of surface disturbance on public land. In addition, NWG could continue exploration as approved under BMRR Permit No. 0256 and create up to 20 acres of disturbance on private land and private mineral estate land. Therefore, activities currently permitted in the Project Area, which are similar to those described for the Proposed Action, would continue. Disturbance from the No Action Alternative would be less than those associated with the Proposed Action (24.93 acres rather than 64.93 acres) for the following resources: Vegetation; Invasive, Nonnative Species; Wildlife; Special Status Species; Migratory Birds; Range Resources, Water Resources; Soils; Social Values and Economics; Recreation, and Visual Resources.

As with the Proposed Action, the No Action Alternative would not result in impacts to cultural resources or recreation because NWG has committed to avoidance of all eligible and unevaluated cultural sites and access for recreation would not be restricted. In addition, no impacts to Native American Religious Concerns would be expected as a result of the No Action Alternative.

3.4 Cumulative Impacts

As defined in 40 CFR 1508.7 (Council on Environmental Quality [CEQ] regulations for implementing the NEPA) a cumulative impact is an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFAs), regardless of which agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

The resources to be analyzed in the Cumulative Impacts section are those for which the Proposed Action would have an impact and include the following: Vegetation; Invasive, Nonnative

Species; Wildlife; Special Status Species (includes Greater Sage-grouse); Migratory Birds; Range Resources; Recreation; Water Resources; Soils; Visual Resources, and Cultural Resources. Although the Proposed Action would result in impacts to Social Values and Economics, these impacts would be both minor and beneficial; therefore, this resource is not analyzed in the Cumulative Impacts section.

The geographic extent of resources potentially affected varies by the type of resource and impact. Six different cumulative effects study areas (CESAs) have been developed and are listed with their total acreage in Table 3.4-1. The CESAs include the Visual Resources CESA (20,402 acres), the Immediate Watershed CESA (approximately 51,668 acres), the Recreation CESA (117,982 acres), the Sage Grouse CESA (191,898 acres), the Grazing CESA (492,881 acres), and the Deer CESA (723,871 acres). The Deer CESA includes the summer range (281,279 acres), winter range (129,374 acres) and the migration corridor (313,218 acres). Figure 2.1.1 shows the Project Area. Figure 3.4.1 is a large scale depiction of CESA areas including Visual Resources, Immediate Watershed, Recreation, and Grazing. Figure 3.4.2 is a small scale depiction of CESA areas including the greater sage-grouse and deer. Table 3.4-1 lists the CESA for each of the potentially impacted resources. The timeframe for the cumulative effects analysis is 14 years to account for reclamation.

Table 3.4-1: Cumulative Effects Study Areas

Resource	Cumulative Effects Study Areas		
	Name	Acres	Description
Water Resources	Immediate Watershed CESA	51,668	Immediate Watershed
Soils			
Vegetation			
Invasive, Nonnative Species			
Wildlife – Small mammals			
Special Status Species			
Migratory Birds			
Cultural Resources			
Wildlife – Big Game	Deer CESA	723,871	Deer Range (summer and winter) and Migration Corridor
Visual Resources	Visual Resources CESA	20,402	Local VRM Area
Recreation	Recreation CESA	117,982	Local Recreational use Area
Range	Grazing CESA	492,881	East and West Big Springs Grazing Allotments (formerly the Big Springs Allotment)
Greater Sage-grouse	Sage Grouse CESA	191,898	Sage Grouse Area of Concern

The Deer CESA (723,871 acres) was developed to assess impacts from Project activities and other actions to the mule deer herd that resides in Nevada in the summer and winter ranges as well as the migration corridor between these two areas. To accomplish this, the entire range that the deer herd utilizes in their annual life cycle within Nevada was used as the basis for the CESA boundary. Historic studies have documented that the deer migrating through the Project Area have summer ranges to the north and west. Deer from the Jarbidge Mountains located in NDOW Management Unit 072 and the Snake Range located in NDOW Management Unit 075 migrate to the south and east in the fall, through NDOW Management Unit 077 and onto their winter ranges

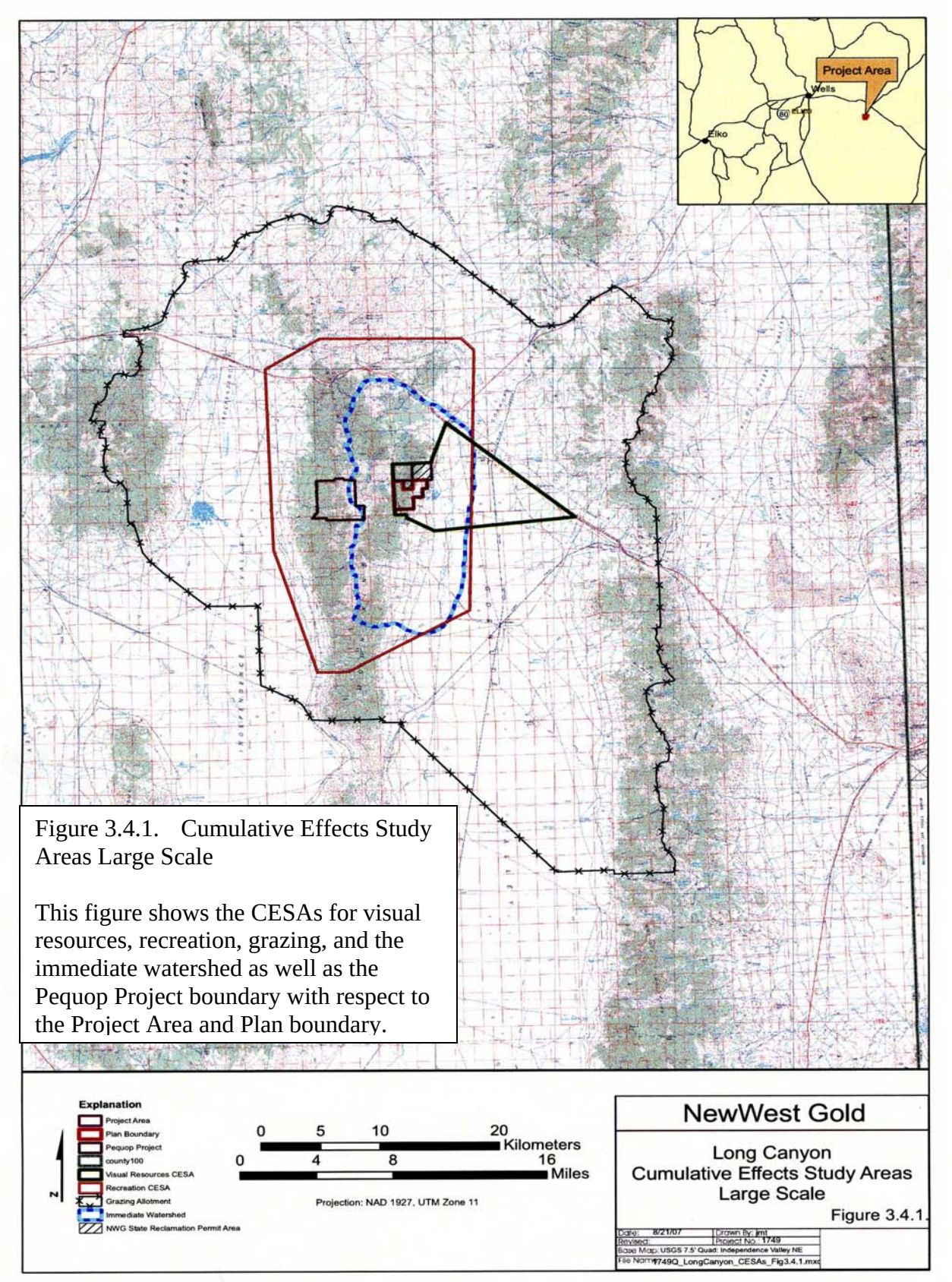

Figure 3.4.1. Cumulative Effects Study Areas Large Scale

This figure shows the CESAs for visual resources, recreation, grazing, and the immediate watershed as well as the Pequop Project boundary with respect to the Project Area and Plan boundary.

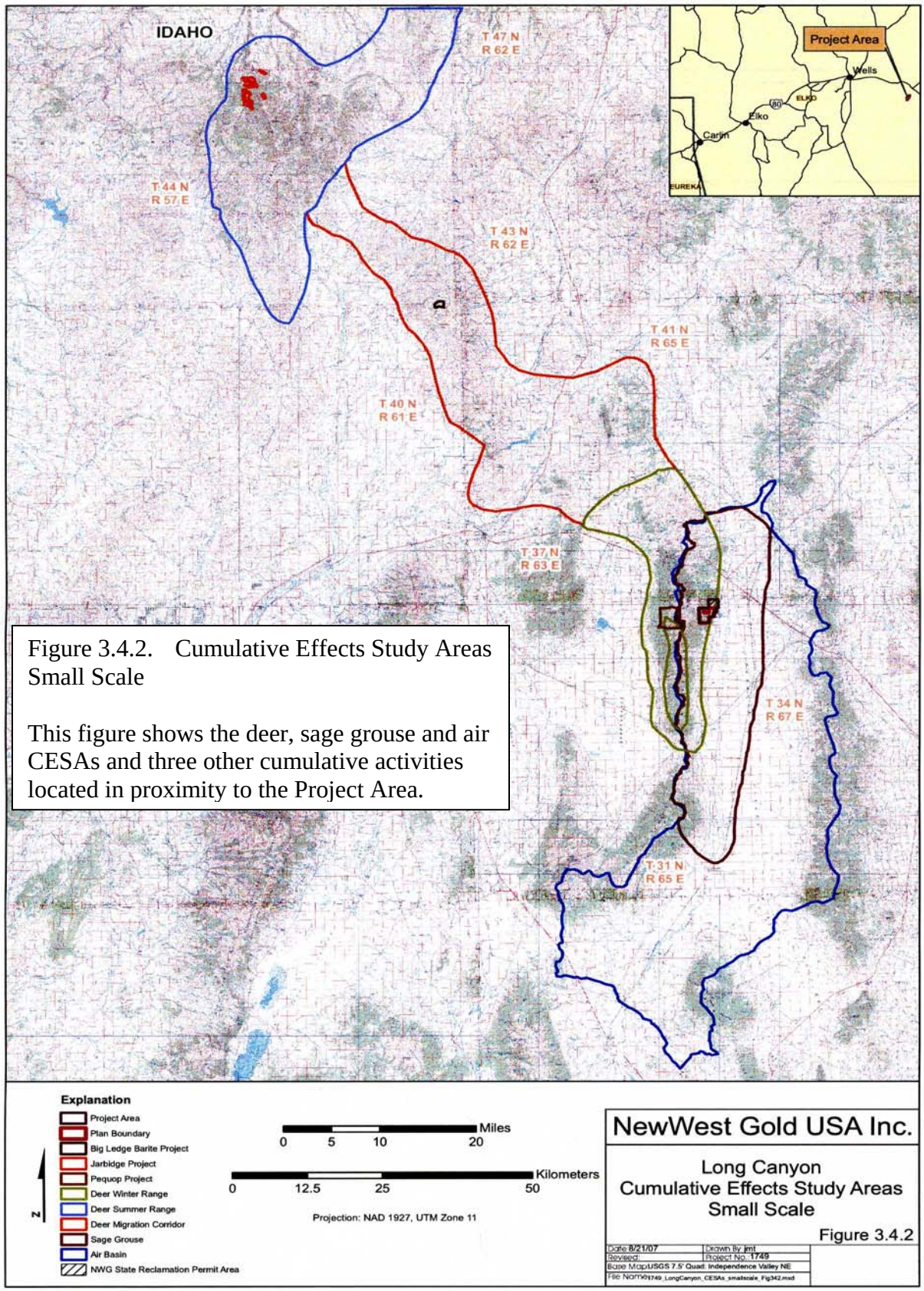

Figure 3.4.2. Cumulative Effects Study Areas Small Scale

This figure shows the deer, sage grouse and air CESAs and three other cumulative activities located in proximity to the Project Area.

located in NDOW Management Unit 078. Unlike other mule deer migrations in northeastern Nevada, this herd begins their migration before winter weather forces the deer to migrate (early October). The deer will arrive on the winter ranges before the end of October or the early part of November. The herd will remain on the winter ranges until early April when they will begin their return migration to the summer ranges. Does and fawns migrate first followed by the mature bucks. Figure 3.4.2 shows the deer CESA. The mule deer summer range depicted extends into Idaho; however, for the purpose of this document analysis has been restricted to Nevada.

The Sage Grouse CESA (191,878 acres) boundary was developed to address impacts to the birds located in the vicinity of the Project Area. The Project Area is on the eastern most edge of greater sage-grouse distribution in Nevada. The eastern boundary of the CESA was selected because it is unlikely that the greater sage-grouse in the area travel past the middle of Goshute Valley. The southern boundary of the CESA was selected to segregate the birds in the vicinity of Project Area from the population found on Spruce Mountain. According to NDOW, these two populations are distinct and very little movement occurs between these birds. The western boundary of the CESA is the crest of the Pequop Range and it is the western boundary of the Population Management Unit (PMU) for the greater sage-grouse population occupying this area. The northern boundary of the CESA was selected to segregate the Long Canyon population from the populations located in Tecoma Valley and Toano Draw.

The Recreation CESA (117,982 acres) boundary was developed to address the major recreational uses in the area, which are motorcycle and mountain bike use. The mountain bike routes in the area are located to the north of the Project Area and just south of the I-80. Mountain bike races occurred in this area from 1991 through 2006. The majority of the motorcycle routes are located north of the Project Area however, some routes cross the Project Area in the far western and eastern portions. Motorcycle races occurred in the area from 1989 through 2004. Motorcyclists ride up Long Canyon from the Project Area and drop down into Sixmile Creek.

3.4.1 Past and Present Actions

Past and present actions in the six CESAs include the following: livestock grazing, range improvements, wildland fires, fire treatment/seedings, recreation, railroads, utility and other rights-of-way (ROWs), mineral exploration, and mining.

The Grazing CESA (492,881 acres) is made up of the East and West Big Springs Allotments. These allotments were formerly one large allotment, the Big Springs Allotment. Historical use in the Big Springs Allotment has consisted of livestock wintering on the white sage and salt desert shrub flats located in the extreme southern portions of the allotment, with spring, summer and fall use occurring elsewhere on the allotment. Livestock have made little use of the upper elevation of the Pequop Range south of I-80 and the upper elevation of the Toano Range north and south of the I-80 (BLM 2005). Authorized use in the two allotments in the Grazing CESA (East and West Big Springs) is 10,150 and 3,651 AUMS, respectively. There are an additional 6,448 and 1,734 suspended AUMs on these allotments, a portion of which could be restored resulting in active use levels of 12,175 AUMs on the East Big Springs Allotment and 4,788 AUMs on the West Big Springs Allotment. Based on potential active use AUMs there are approximately 29 acres per AUM.

There are 25 BLM-administered grazing allotments that are within or overlap the Deer CESA. The total number of potential active use AUMs in the Deer CESA is 140,820 (including 20,588 suspended AUMs). The Deer CESA includes 723,871 acres; therefore, the current grazing rate is approximately five acres per AUM. Range improvements within the Grazing and Deer CESAs include wells/storage tanks, reservoirs, pipelines, seedings, fences, spring/riparian exclosures, spring developments and noxious weed treatments.

Historic recreational use includes hunting, Christmas tree cutting, dispersed off highway vehicle use as well as organized mountain bike and motorcycle races. Dispersed uses in the area have resulted in new trails, which are vulnerable to the introduction of nonnative, invasive, species and which may have contributed to the loss of soils and vegetation and increased erosion. There have not been any organized motorcycle or bike races in the area since 2006; however, there is continued dispersed use of the Recreation CESA and access through the Project Area.

Although there have been no recorded wildland fires or fire treatments in the Project Area, there has been disturbance associated with wildland fires in the Deer, Sage Grouse, and Immediate Watershed CESAs. Table 3.4-2 outlines the disturbance acres from historic fire, fires during the 2007 season, and fire treatments/seedings in these three CESAs. In addition, there have been at least 113 wildland fires documented in the CESA for Range. Most of these fires were small lightning strikes associated with precipitation and burned less that one-half acre each. However, several fires in the 100- to 300-acre size and from 1,000- to 3,500-acre size have occurred. Between 1991 and 2005, three fires burned a total of 8,050 acres in the East and West Big Springs Allotments (BLM 2005). Tables 3.4-3 and 3.4-4 outline the vegetation communities, or habitat types, affected by wildland fires within the Deer and Sage Grouse CESAs (Figure 3.4.2).

Table 3.4-2: Wildland Fires and Treatments in the Deer, Sage Grouse, and Immediate Watershed CESAs

CESA	Historic Fires (acres)	2007 Fires (acres)	Treatments (acres)
Immediate Watershed	4,133	0.00	1,212
Sage Grouse Area of Concern	5,542	0.00	1,212
Grazing	16,090	264	1,774
Deer			
Summer Habitat	23,339	10.12	1,918
Winter Habitat	10,270	158	1,209
Migration Corridor	112,323	23,014	5

Table 3.4-3: Acres of Vegetation Communities and Habitat Types Impacted by Historic Wildland Fires in the Deer and Sage Grouse CESAs (1999-2006)

Vegetation Community	Acres Burned
Agriculture	1.81
Developed, Medium - High Intensity	3.89
Developed, Open Space - Low Intensity	35.00
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	722.68
Great Basin Pinyon-Juniper Woodland	12,418.26
Great Basin Semi-Desert Chaparral	12.68
Great Basin Xeric Mixed Sagebrush Shrubland	10,616.72
Inter-Mountain Basins Big Sagebrush Shrubland	46,145.43
Inter-Mountain Basins Big Sagebrush Steppe	5,226.81
Inter-Mountain Basins Cliff and Canyon	2,340.37
Inter-Mountain Basins Greasewood Flat	6.94
Inter-Mountain Basins Mixed Salt Desert Scrub	19.64
Inter-Mountain Basins Montane Sagebrush Steppe	61,946.84
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	1,677.35
Inter-Mountain Basins Semi-Desert Grassland	2,859.55
Inter-Mountain Basins Semi-Desert Shrub Steppe	59.27
Invasive Annual Grassland	431.63
Invasive Annual and Biennial Forbland	14.01
North American Arid West Emergent Marsh	0.54
Open Water	3.34
Rocky Mountain Aspen Forest and Woodland	804.61
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	3.47
Rocky Mountain Subalpine Mesic Meadow	1.11
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	13.92
Total	**145,365.83**

Table 3.4-4: Acres of Vegetation Communities and Habitat Types Impacted by Historic Wildland Fires in the Deer and Sage Grouse CESAs (2007)

Vegetation Community	Acres Burned
Developed, Open Space - Low Intensity	3.9
Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland	19.2
Great Basin Piñon -Juniper Woodland	1,053.6
Great Basin Xeric Mixed Sagebrush Shrubland	608.6
Inter-Mountain Basins Big Sagebrush Shrubland	3,795.0
Inter-Mountain Basins Big Sagebrush Steppe	1,159.9
Inter-Mountain Basins Cliff and Canyon	123.4
Inter-Mountain Basins Greasewood Flat	1.8
Inter-Mountain Basins Montane Sagebrush Steppe	15,133.6
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	37.5
Inter-Mountain Basins Semi-Desert Grassland	678.3
Inter-Mountain Basins Semi-Desert Shrub Steppe	85.6
Invasive Annual Grassland	368.7
Invasive Perennial Grassland	3.0
Rocky Mountain Aspen Forest and Woodland	135.5
Rocky Mountain Subalpine Mesic Meadow	2.0
Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland	10.0
Total	**23,219.6**

According to the LR2000 database, various types of rights-of way (ROWs) have been approved in the six CESAs and include railroad, irrigation, telephone, federal aid, material sites, federal roads, communication, power lines, roads, forest service, other federal, and other (undefined). The approximate disturbance within the Deer and Sage Grouse CESAs associated with these ROWs is listed in Table 3.4-5.

Table 3.4-5: ROW Disturbance Acres in the Deer and Sage Grouse CESAs by Type of ROW

ROW Type	Acres of Disturbance
Railroad	1,882
Irrigation	26
Telephone	1,829
Federal Aid	3,917
Material Sites	377
Federal Roads	151
Communication	48
Power line	30,858
Roads	1,486
Forest Service	37
Other Federal	5
Other	1.50
Total	**40,617**

Past and present minerals activities in the six CESAs include historic exploration and mining operations. Gold, silver, barite and tungsten were mined within the Jarbidge Mining District, which is located on National Forest System (NFS) lands. Mining and exploration have also occurred at the Big Ledge Mine, Stormy Creek Mine, and the Dry Creek Mill Site on BLM-administered lands within the Deer CESA. Spirit Minerals LP's Big Ledge project has been authorized to conduct up to 193.3 acres of surface disturbance for exploration and mining on private and public lands within Sections 9, 10 15, and 16 of T. 42 N., R. 62 E. and Sections 22, 24, 26, 27, 34, and 35 of T. 42 N., R. 61 E. (Figure 3.4.2). Disturbance would include exploration roads, overland travel, drill sites, trenching, access roads, haul road, stockpile removal area, and equipment staging area. Mineral exploration by Agnico Eagle has and is occurring at the Pequop project in the Pequop Range west of the Project Area (Figures 3.4.1 and 3.4.2) where 100 acres of disturbance have been approved for exploration disturbance. Pequop is located in the Deer Winter Range. For projects other than Pequop and Spirit Minerals, other past and present disturbance acres are outlined in Table 3.4-6 and are based on the LR2000 database used by the BLM. The total maximum disturbance created by past and present minerals activities is 150 acres within the Deer Winter Range and 335 acres in the Deer Migration Corridor.

Table 3.4-6: Minerals Disturbance Acres in the CESAs by Authorization and CESA

CESA	Authorization	Acres of Disturbance
Deer Winter Range	Closed Notices (7)	26.74
	Expired Notices (2)	9.92
	Authorized Notices (5)	12.77
	Plan – Pequop Project	100
	Total	**150**
Deer Migration Corridor	Closed Notices (39)	99.11
	Expired Notices (9)	28.1
	Authorized Notices (5)	14.84
	Plan – Big Ledge Project	193.3
	Total	**335**

3.4.2 Reasonably Foreseeable Future Actions

The Reasonably Foreseeable Future Actions (RFFAs) include continued livestock grazing, mineral exploration and mining, dispersed recreation, wildland fire and emergency fire rehabilitation, and ROW authorizations.

Livestock grazing and range improvement activities are expected to continue consistent with the present actions discussion.

Recreation activities and impacts may increase as a result of population growth near Wells and Wendover. Impacts from recreation would be similar to those discussed under past and present actions.

Wildland fires, fire suppression, and burned area rehabilitation are also likely to occur within some or all of the CESAs in the next 14 years (ten years for exploration plus four years for reclamation). This is likely to increase the changes in the plant community due to large fires but also result in somewhat less diverse communities in the short term because fire rehabilitation seed mixes include limited species.

Mineral exploration activities are expected to continue based on current supply and demand of minerals and commodities. Data for the acres of RFFA surface disturbance in the CESAs is based on the LR2000 and proposed project information from the BLM and USFS. In the Deer Summer Range (located primarily on NFS Lands), Atna Resources, Inc. has proposed continued mineral exploration within the Jarbidge Exploration area located approximately 60 miles northwest of Wells, Nevada, in the vicinity of the town of Jarbidge. The proposed project is located on NFS lands in Sections 9 through 11, 15, 16, 21 through 23, 26 through 28, 33, and 34 of T. 46 N., R. 58 E. The proposed project would disturb a maximum of 27.8 acres in phases over a five year period and include disturbance from drill sites, sumps, constructed roads, and reopened reclaimed roads. The activities proposed in the Deer Summer Range are not tracked on the LR2000; therefore the total proposed disturbance is based on the aforementioned numbers and could total approximately 27.8 acres.

LS Power Associates (LS Power) has applied for a ROW to reserve a wind farm area west of the Project Area. If the ROW is granted, LS power would have three years to collect data and determine if a wind turbine farm would be feasible. One acre of surface disturbance associated with an anemometer tower for collecting wind data is proposed.

3.4.3 Vegetation

The CESA for vegetation is the Immediate Watershed, which covers 51,668 acres. See Figure 3.4.1.

Past and Present Actions - Past and present actions that could impact vegetation have been limited and include mineral exploration, road construction and maintenance, ranching operations (grazing), ROWs, dispersed recreation, or wildland fires that altered the structure, composition, and ecology of plant communities in the CESA. There are no specific data that quantify vegetation and habitat loss from grazing or recreation. A total of 4,133 acres was disturbed by wildland fires, which is less than eight percent of the CESA. A total of 1,212 acres of which 30 percent was reseeded under fire rehabilitation. Past and present minerals disturbance in the entire Deer Winter Range, which overlaps the Immediate Watershed CESA, totals approximately 150 acres. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed and some areas have naturally revegetated over time.

Reasonably Foreseeable Future Actions - Potential impacts to vegetation from grazing, road construction and maintenance, ROWs, dispersed recreation, or wildland fires that alter the structure, composition, and ecology of plant communities in the CESA could occur. There are no specific data on the potential impacts to vegetation from dispersed recreation, grazing, or potential wildland fires.

Vegetation alteration would occur from the past, present and RFFA's due to reclamation of exploration areas and disturbance associated with ROWS and seeding in burn areas that would favor herbaceous species over shrubs. The primary impact to vegetation relates to changes in dominant plant communities that affect habitat for wildlife (i.e., conversion from sagebrush to grasslands). Wildfires combined with displacement of native species by invasive annual grasses such as cheatgrass are the primary factors that have altered the structure, composition, and ecology of plant communities in the CESA. Vegetation impacts from reclamation of exploration roads and drill pads would initially alter the dominant Great Basin Piñon-Juniper Woodlands, which would be converted to grass and forb species that can exist in the environment of northeastern Nevada, are proven species for revegetation, and/or are native species found in the existing plant communities. In time, the reclaimed and seeded areas should result in stable plant communities with densities that are similar to the pre-disturbance plant densities. Impacts to vegetation from recreation activities would include destruction of native vegetation from off road vehicles that travel off of established roadways. Impacts to vegetation from grazing would include trampling of vegetation near streams, springs, or riparian areas. Disturbed sites and recently seeded areas are candidates for invasion by undesirable species such as noxious weeds and cheatgrass.

Past and present actions have disturbed approximately six percent of the CESA,. Some of the past actions are expected to have occurred far enough in the past that the disturbance has stabilized (e.g., fire areas that have been reseeded).

The Project would result in the loss or alteration of 64.93 acres of vegetation, which equates to an incremental cumulative impact of approximately 0.1 percent of the CESA. This disturbance would not occur all at one time but potentially over a ten-year period followed by up to four

years of reclamation and revegetation. The incremental impacts to vegetation from the Proposed Action when added to the past and present actions and RFFAs would be minimal.

3.4.4 Invasive, Nonnative Species

The CESA for Invasive, Nonnative Species is the Immediate Watershed, which includes 51,668 acres and is shown on Figure 3.4.2.

Past and Present Actions - Past and present actions with impacts created from invasive, nonnative species (noxious weeds) have been limited and include mineral exploration, ranching operations (grazing), road construction and maintenance, or dispersed recreation that could have disturbed vegetation and soils creating an opportunity for invasive plant colonization and introduced noxious weed seeds. Cheatgrass, an invasive species, has spread due to wildland fires. There are no specific data that quantify impacts from invasive, nonnative species as a result of grazing or recreation. A total of 4,133 acres has been disturbed by wildland fires, which is less than eight percent of the CESA of which 1,212 acres or 30 percent have been reseeded under fire rehabilitation. Past and present minerals disturbance in the entire Deer Winter Range, which overlaps the Immediate Watershed CESA, totals approximately 150 acres. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore,, it is reasonable to assume that some areas have been reclaimed, have become naturally stabilized, and have naturally revegetated over time. West of the Project Area (Figure 3.4.2) invasive or nonnative species such as hoary cress, scotch thistle and black henbane infestations have been identified in the Pequop Mountain range along existing roads. The Scotch thistle infestation is less then four acres in size, the hoary cress infestation is approximately nine acres in size, and the black henbane infestation is 0.25 acre in size.

Reasonably Foreseeable Future Actions - Potential impacts from invasive, nonnative species (noxious weeds) as a result of grazing, dispersed recreation, roads, ROWs, minerals activities or loss of native vegetation associated with potential wildland fires could occur. There are no specific data on the potential impacts resulting from invasive, nonnative species due to dispersed recreation, grazing, or potential wildfires. The one acre of disturbance from the Pequop Wind Project would potentially result in impacts from invasive, nonnative species.

Disturbance to soils and vegetation from past and present actions have created the opportunity for invasive species to colonize some areas. Disturbed sites and recently seeded areas associated with reclamation are candidates for invasion by undesirable species such as noxious weeds and cheatgrass. Over time reclamation, seeding, and monitoring of disturbed areas would reduce the potential for the introduction and colonization of weed species. The past and present actions have disturbed only a small portion of the CESA, approximately six percent, and all RFFAS would require BMPs such as washing equipment before entering the property and the use of weed free straw bales and seed mixes, as well as mitigation for the control of invasive, nonnative species. The existing infestations affect approximately 0.02 percent of the CESA.

The total disturbance from the Project would affect less than one percent of the CESA. In addition, impacts from noxious weeds as a result of the Project would be limited to the infestations following removal of vegetation. These impacts would be localized and minimized due to implementation of environmental protection measures and implementation of a Noxious Weed Plan. Therefore, incremental cumulative impacts from invasive, nonnative species as a

result or the Proposed Action when added to the past and present actions and RFFAs would be minimal.

3.4.5 Wildlife

The CESA for small mammal wildlife is the Immediate Watershed, which includes 51,668 acres. The CESA for big game wildlife is the Deer CESA, which includes 723,871 acres.

Small Mammals

Past and Present Actions - Past actions that could impact small mammal wildlife include mineral exploration, ranching operations (grazing), road construction or maintenance, or dispersed recreation that impacted water resources or reduced wildlife habitat in the CESA. A total of 4,133 acres in the CESA has been disturbed by wildland fires, which is less than eight percent of the CESA of which 1,212 acres or 30 percent have been reseeded under fire rehabilitation. Past and present minerals disturbance in the entire Deer Winter Range, which overlaps the Immediate Watershed CESA, totals approximately 150 acres. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed and some areas have become naturally stabilized, and/or naturally revegetated over time.

Reasonably Foreseeable Future Actions - Potential impacts to wildlife could occur from grazing, dispersed recreation, roads, ROWs, minerals activities or loss of wildlife habitat associated with future wildland fires. There are no specific data on the potential impacts that would result to small mammal wildlife as a result of dispersed recreation, grazing, or future wildfires. Reasonably foreseeable mining activities include pending Notices and plans of operations; however, there are no pending Notices or plans of operations other than the Proposed Action within the CESA. The Pequop Wind Project would potentially result in impacts to one acre of small mammal wildlife habitat in the CESA.

Big Game

Past and Present Actions - Past actions that could impact mule deer include mineral exploration, ranching operations (grazing), road construction or maintenance, or dispersed recreation that impacted water resources or reduced wildlife habitat. There are no specific data that quantify habitat loss from grazing or recreation. However, there are 25 BLM-administered grazing allotments that are within or overlap the Deer CESA. The total number of potentially active AUMs in the Deer CESA is 140,820 (including 20,588 suspended AUMs). A total of 23,219.6 acres was disturbed by wildland fire in 2007. Historical wildfires have disturbed 145,366 acres in the Deer, Sage Grouse, and Immediate Watershed CESAs. A total of 1,212 acres was seeded under fire rehabilitation in the Immediate Watershed CESA. It is unknown how many acres of burned area in the Deer and Sage Grouse CESA have been rehabilitated or have naturally revegetated. Please refer to Tables 3.4-3 and 3.4-4 for specific habitat types affected by fire in the Deer CESA. Past and present minerals disturbance in the entire Deer CESA totals approximately 674 acres or 0.09 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed and some areas have naturally revegetated over time.

In addition, construction of ROWs may have led to fragmentation of wildlife habitat as well as impacts to vegetation and soils leading to soil erosion and the increased potential for the introduction of invasive, nonnative species. Construction and use of the railroads and roads have created an ignition source for wildland fires, facilitated the introduction and proliferation of invasive, nonnative species, and impacted the deer herd by creating obstacles within the migration corridor leading to mortality (such as vehicle-related deaths). According to data provided by NDOT, approximately 60 deer were killed by vehicles (out of 86 total animal-related incidents) on US 93 between Wells and Jackpot, Nevada, in the five-year period from September 2002 through September 2007 (personal communication, Rick Towner, Safety Analyst, Nevada Department of Transportation, November 29, 2007). In addition, 61 deer were killed by vehicles on the portion of I-80 between Oasis and Wells, Nevada from December 2004 through May 2007 (personal communication, Lori Bellis, Biologist, Nevada Department of Transportation, February 21, 2008).

Reasonably Foreseeable Future Actions - Potential impacts to mule deer could occur from grazing, dispersed recreation, roads, ROWs, minerals activities or loss of native vegetation associated with potential wildland fires. There are no specific data on the potential impacts that would result to wildlife as a result of dispersed recreation, grazing, or potential wildfires. The Pequop Wind Project would potentially result in impacts to one acre of wildlife habitat in the CESA.

Impacts to wildlife (small mammals and big game) from the Project would be limited to the removal of vegetation, destruction of habitat (up to 64.93 acres), noise associated with exploration, and vehicular collisions. The Project would affect approximately 0.13 percent of the CESA for small mammals and less than 0.01 percent of the CESA for big game. Based on the above analysis and findings from Section 3.2.3, incremental impacts to wildlife species (both small mammals and big game) as a result or the Proposed Action when added to the past and present actions and RFFAs are expected to be minimal.

3.4.6 Special Status Species

The CESA for Special Status Species includes both the Immediate Watershed and the Sage Grouse Area of Concern CESA, which together contain 243,566 acres.

Past and Present Actions - Past and present actions that could impact special status species, (e.g., bats, greater sage-grouse, pygmy rabbits, ferruginous hawks, bald eagles, and Mattoni's blue), include mineral exploration, ranching operations (grazing), road construction and maintenance, or dispersed recreation. Impacts to special status species from these activities include loss of forage, cover, and habitat as well as disturbance of mating and brood rearing practices. There are no specific data that quantify impacts to special status species as a result of grazing or recreation; however, the greatest impact would be from off road use that destroyed habitat. A total of 5,542 acres was disturbed by wildland fires (approximately two percent of the CESA) of which 1,212 acres or 30 percent have been seeded for fire rehabilitation. Past and present mineral exploration disturbance in the entire Deer Winter Range, which overlaps the Immediate Watershed CESA, and the Sage Grouse Area of Concern totals approximately 150 acres. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed and some areas have naturally revegetated over time.

Reasonably Foreseeable Future Actions - Potential impacts to special status species from grazing, dispersed recreation, roads, ROWs, minerals activities or loss of cover, forage, or habitat associated with future wildland fires could occur. There are no specific data on the potential impacts to special status species as a result of dispersed recreation, grazing, or potential wildfires. The Pequop Wind Project could impact approximately one acre of potential habitat within the CESA.

The greatest impact to special status species is habitat alteration, which would occur from the past, present and RFFA's from reclamation of exploration areas and disturbance associated with ROWS and seeding in burn areas that would favor herbaceous species over shrubs. The primary impact relates to changes in dominant plant communities that affect habitat for wildlife (i.e., conversion from sagebrush to grasslands). Wildfires combined with displacement of native species by invasive annual grasses such as cheatgrass are the primary factors that have altered the structure, composition, and ecology of plant communities in the CESA. Vegetation from exploration reclamation of roads and drill pads would initially alter the dominant Great Basin Piñon-Juniper Woodland vegetation with grass and forb species that can exist in the environment of northeastern Nevada, are proven species for revegetation, and/or are native species found in the existing plant communities. In time, the reclaimed and seeded areas should result in stable plant communities with densities that are similar to the pre-disturbance plant densities. Impacts to vegetation from recreation activities would include destruction of native vegetation from off road vehicles that travel off of established roadways. Impacts to vegetation from grazing would include trampling of vegetation near streams, springs, or riparian areas. Disturbed sites and recently seeded areas are candidates for invasion by undesirable species such as noxious weeds and cheatgrass.

Loss of forage, cover, and habitat from past and present actions have impacted special status species in some areas. However, less than three percent of the CESA was disturbed and some of the disturbance has been reclaimed, seeded, or otherwise revegetated, which would decrease the impacts further. In addition, all RFFAS would require avoidance or other mitigation for the protection of special status species and their habitat.

The Project would affect approximately 0.1 percent of the Immediate Watershed CESA and approximately 0.03 percent of the Sage Grouse CESA. There would be no cumulative adverse impacts to any listed threatened or endangered species as none of these species are known to reside within the CESA. Sensitive bat species, pygmy rabbits, raptors, and greater sage-grouse are the only special status animal species known to occur in the Project Area. Based on the above analysis and findings from Section 3.2.4, incremental impacts to special status species as a result of the Proposed Action when added to the past and present actions and RFFAs are expected to be minimal.

3.4.7 Migratory Birds

The CESA for migratory birds is the Immediate Watershed, which contains 51, 668 acres.

Past and Present Actions - Past and present actions that could impact migratory birds include mineral exploration, ranching operations (grazing), road construction and maintenance, or dispersed recreation. Impacts to migratory birds have resulted from the following: 1) destruction of habitat associated with road building and cutting tress; 2) disruption from human presence or

noise such as drill rigs, water trucks and four wheel drive pickups; or 3) direct impacts/harm to migratory birds that would result if trees containing viable nests were cut down or ground nests destroyed by construction or ranching equipment. There are no specific data that quantify impacts to migratory birds as a result of grazing or recreation. However, impacts to migratory birds from recreation activities would include destruction of native vegetation or nesting areas from off road vehicles that traveled off of established roadways. Impacts to migratory birds from grazing include trampling of vegetation or nesting areas near streams, springs, or riparian areas. Impacts from wildland fires would include total destruction of the existing habitat and alteration of the habitat thereafter. A total of 4,133 acres was disturbed by wildland fires (less than ten percent of the CESA) of which 1,212 acres have been reseeded as part of fire rehabilitation.

Reasonably Foreseeable Future Actions - Potential impacts to migratory birds from grazing, dispersed recreation, roads, ROWs, minerals activities or loss of native vegetation associated with potential wildland fires could occur. There are no specific data on the potential impacts to migratory birds or their habitat as a result of dispersed recreation, grazing, or potential wildfires. The Pequop Wind Project would potentially result in disturbance to one acre of migratory bird habitat. Specific impacts would be similar to the impacts described for past and present actions.

Disturbance to migratory birds from past and present actions would have been reduced through reclamation and seeding of disturbed areas. The past and present actions have disturbed only a small portion of the CESA, approximately three percent. RFFAs would be required to implement mitigation measures and abide by the MBTA, which would minimize impacts.

Impacts to migratory birds and their habitat from the Project would be limited to the removal of vegetation, or destruction of habitat (up to 64.93 acres), and noise associated with exploration. These impacts would be localized and minimized due to implementation of environmental protection measures and mitigation measures required by the BLM (e.g., migratory bird survey during nesting season to comply with the MBTA). The Project would affect approximately 0.1 percent of the Immediate Watershed CESA. Based on the above analysis and findings from Section 3.2.6 incremental impacts to migratory birds as a result of the Proposed Action when added to the past and present actions and RFFAs are expected to be minimal.

3.4.8 Range Resources

The Grazing CESA consists of approximately 492,881 acres. Authorized use in the Grazing CESA is 16,963 AUMs of which 8,182 AUMs are currently suspended. Based on potential active use AUMs there are approximately 29 acres per AUM.

Past and Present Actions - Past and present actions that could impact range resources include mineral exploration, road construction and maintenance, ROWs, wildfires, or dispersed recreation that could have impacted water sources or reduced forage. There are no specific data that quantify impacts from roads, ROWs, or recreation; however, the actual building of roads, sumps, other linear features, or off road traveling would destroy habitat or disrupt movement of grazing animals. A total of approximately16,354 acres (approximately three percent of the CESA) was disturbed by wildland fires of which 1,774 acres were reseeded as part of fire rehabilitation. Past and present minerals disturbance in the Grazing CESA, totals approximately 150 acres. There are no data on the number of reclaimed acres. State and federal regulations

require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed and some areas have naturally revegetated over time.

Reasonably Foreseeable Future Actions - Potential impacts to range resources could result from dispersed recreation, roads, wildfires, ROWs, and minerals activities. There are no specific data on the potential impacts to range resources from dispersed recreation or wildfires. The Pequop Wind Project would potentially result in impacts to one acre of range resources. Specific impacts would be similar to the impacts described for past and present actions.

Impacts to water sources or a reduction in forage from past and present actions have impacted livestock grazing. However, less than three percent of the CESA was disturbed and some of the disturbance has been reclaimed, seeded, or otherwise naturally revegetated, which would decrease the impacts. In addition, stocking rates for the grazing allotment are based on the availability of water and forage, which may be influenced by natural forces.
The Project would disturb up to 64.93 acres of potential forage, which equates to less than three AUMs and should have no impacts to water sources used for livestock watering primarily because water resources are very limited in the Project Area. Therefore, incremental impacts to range resources as a result or the Proposed Action when added to the past and present actions and RFFAs would be minimal.

3.4.9 Recreation

The CESA for recreation is the local recreational use area, which contains 117,982 acres.

Past and Present Actions - Past and present actions that could impact recreation have been limited and include mineral exploration, road construction and maintenance, ranching operations (grazing), ROWs, or wildfires that may have restricted access or reduced recreation opportunities within the CESA. There are no specific data that quantify impacts to recreation from grazing, ROWs, or roads; however, the greatest impact would be related to limitations on access. A total of 4,133 acres was disturbed by wildland fires (approximately three percent of the CESA) of which 1,212 acres or 30 percent were seeded for fire rehabilitation.

Reasonably Foreseeable Future Actions - Potential impacts to recreation from grazing, road construction and maintenance, ROWs, minerals activities, and potential wildfires could occur. There are no specific data on the potential impacts to recreation from grazing, ROWs or roads; however, they would be similar to the impacts described for past and present actions.

The Project would not limit access for recreation; therefore, the only potential impacts would be as a result of noise and activity in the area. The primary recreation use in the CESA includes off highway vehicles or motorcycle use, and mountain biking, and hunting. The majority of these activities would not be impacted by noise and human presence in the area. Noise could affect hunting; however, the Proposed Action would only result in localized temporary disturbance from noise and would therefore have minimal impacts on hunting. Based on the above analysis and findings from Section 3.3, incremental impacts to recreation as a result or the Proposed Action when added to the past and present actions and RFFAs would be minimal.

3.4.10 Water Resources

The CESA for Water Resources is the Immediate Watershed, which contains 51,668 acres.

Past and Present Actions - Past actions that could impact water resources include minerals activities, ranching operations including grazing and irrigation from wells, water use by the City of West Wendover, ROWs, road construction and maintenance, dispersed recreation, and wildfires that introduced sediment to ephemeral streams or springs or consumed water within the Immediate Watershed CESA. Impacts from grazing could include cattle congregating around water sources causing bank trampling, which in turn can cause increased sedimentation. Increased sedimentation could also occur when vehicles or cattle use stream crossings or remove vegetation from the sides of the streams. There are no specific data that quantify the amount of sedimentation. A total of 150 acres has been disturbed by past and present mineral activities within the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed and some areas have naturally revegetated over time decreasing the amount of sediment that reaches the waterways.

Reasonably Foreseeable Future Actions - Potential impacts to water could result from minerals activities, ranching operations including grazing and irrigation from wells, water use by the City of West Wendover, ROWs, road construction and maintenance, railroad maintenance, wildfires, and dispersed recreation that could introduce sediment to ephemeral streams or springs or consume water within the Immediate Watershed CESA. There are no specific data on the amount of sedimentation or water use that could result from these activities. Impacts from RFFAs would be similar to those described for past and present actions.

Disturbance to vegetation and soils and water consumption from past and present actions has impacted water resources. However, less than three percent of the CESA has been disturbed and some of the disturbance has been reclaimed, seeded, or otherwise revegetated, which would decrease the impacts from sedimentation. In addition, all RFFAS would require BMPs or other mitigation for the protection of water resources.

The Proposed Action would require approximately 2,000 to 3,000 gallons of water per drill rig per day. NWG has an agreement with the Big Springs Ranch to obtain water from the ranching operations. This is a minimal amount of water compared to the water available from nearby water wells associated with the Big Springs Ranch and the 1,200 to 2,100 gallons per minute that Johnson Springs produces. In addition, NWG has committed to working with the City to mitigate potential impacts to Johnson Springs (Section 2.1.11). No impacts are expected to ground water; therefore, the incremental impacts to water resources as a result or the Proposed Action when added to the past and present actions and RFFAs would be minimal.

3.4.11 Soils

The CESA for Soils is the Immediate Watershed which contains 51,668 acres.

Past and Present Actions - Past and present actions that could impact soils include mineral exploration, ranching operations (grazing), road construction and maintenance, ROWs, wildfires, or dispersed recreation. Impacts from these activities include loss of soils productivity due to

changes in soil physical properties, soil fertility, soil movement in response to water and wind erosion, and loss of soil structure due to compaction. There are no specific data that quantify impacts from grazing, roads, ROWs, or recreation A total of 4,133 acres was disturbed by wildland fires of which 1,212 acres or 30 percent were seeded as part of fire rehabilitation. Burned areas with damaged or destroyed vegetation are susceptible to soil erosion by wind and water.

Reasonably Foreseeable Future Actions - Potential impacts to soils could result from grazing, dispersed recreation, roads, wildfires, ROWS, and minerals activities. There are no specific data on the potential impacts to soils from dispersed recreation, grazing, or potential wildfires. The Pequop Wind Project would potentially result in impacts to one acre of soils. Impacts associated with RFFAs would be similar to the impacts described for past and present actions.

Reclamation of past mining and exploration disturbance and future restoration activities would mitigate soil movement and productivity loss. Soil salvaged and used in reclamation would become viable and would be expected to return to pre-disturbance productivity once vegetation was established. Seeding and revegetation of areas that have been burned would reduce soil movement and loss.

The Project would disturb up to 64.93 acres of soils, which is approximately 0.1 percent of the CESA. In addition, these impacts would be localized and minimized due to implementation of environmental protection measures and BMPs, which include concurrent reclamation and the use of silt fences or weed-free straw bales to prevent erosion. Therefore, the incremental impacts to soils as a result of the Proposed Action when added to the past and present actions and RFFAs would be minimal.

3.4.12 Visual Resources

The CESA for Visual Resources is the local VRM area, which includes 20,402 acres.

Past and Present Actions - Past and present actions that could impact visual resources include minerals activities, road construction and maintenance, railroad construction, ranching operations (grazing), ROWs, or wildfires that may have altered the visual elements of line, form, color, and texture within the CESA. There are no specific data that quantify impacts to visual resources from grazing, ROWs, or roads. A total of 4,133 acres was disturbed by wildland fires and 1,212 acres or 30 percent were reseeded as part of fire rehabilitation. Impacts to visual resources from the past and present activities are dependent upon the four categories of the BLM's VRM program, which allows minimal to major modifications of the landscape. Man-made features tend to be linear or rectangular in character, while natural events such as wildland fires or landslides tend to be patchy in character.

Reasonably Foreseeable Future Actions - Potential impacts to visual resources from grazing, road construction and maintenance, ROWs, minerals activities, and potential wildfires could occur. There are no specific data on the potential impacts to visual resources from grazing, ROWs or roads. The Pequop Wind Project would disturb one acre and result in minimal impacts to visual resources from the anometers.

The visual resources in the Project Area are consistent with BLM prescribed Visual Resource Inventory Class IV objectives. The objective of Class IV is to provide for managing activities that require major modification of the existing character of the landscape. The change to the characteristic landscape can be high. Visual Impacts in the Project Area have been minimized to the extent possible and have resulted in minimal changes to the landscape. Most of the activities are concealed by trees. Upon completion of rehabilitation and reclamation, long term visual impacts would be minimized; therefore, impacts to visual resources from the Proposed Action in combination with the past and present actions and RFFAs would be minimal.

3.4.13 Cultural Resources

The CESA for Cultural Resources is the Immediate Watershed which contains 51,668 acres.

Past and Present Actions – The CESA for cultural resources is shown on Figure 3.4.1. Cultural properties tend to degrade over time due to natural forces; however, many survive for hundreds or thousands of years. Modern human activity tends to exacerbate the damage and as a consequence cultural resources are being damaged and disappearing at an ever increasing rate. Many of the recorded cultural resources in the CESA exhibit impacts resulting from modern use of the land. Grazing damage is found at virtually all recorded sites, and sites are likely to have sustained damages from previous mining exploration, road construction, NDOT gravel pits, fences, agricultural practices, oil and gas seismic exploration, recreation, tree removal by chaining, wildfires and erosion resulting from these activities. Although difficult to quantify, the paucity of artifacts at some sites may be due to removal by artifact collectors.

Another factor that leads to the loss of cultural resources and archaeological data is the imperfect nature of cultural resource management and archaeological research. Intensive cultural resource inventories (30 meters between transects) are meant to identify most cultural resources within the inventory boundary, but result in some smaller sites and low density sites being overlooked. The overall success rate depends on many factors including transect spacing, training/experience of the field crew, surface visibility, lighting, time of day, difficulty of the terrain, etc. Once a cultural resource is discovered, information is gathered by closely scrutinizing the site area and sometimes excavating small probe units to determine if subsurface deposits are present. This information is documented in site forms and inventory reports which include National Register eligibility recommendations. The federal agency then makes a formal determination of eligibility and project effects based on the report and any other available data. Given that eligibility determinations are based primarily on sites' surface characteristics, there is room for error given that surface manifestations do not always accurately reflect the nature and density of subsurface deposits. Other factors at play are the differences of opinion among professional archaeologists as to what research (and therefore archaeological sites) is important, and the evolving nature of archaeological research. In some cases, sites now thought to be lacking the ability to answer important questions may become important as archaeological method and theory progress but may not be preserved. The courts have determined that cultural resource management standards such as those employed for the current project meet the objectives of the National Historic Preservation Act and other pertinent statutes, but this does not necessarily imply that there are not project specific or cumulative losses of cultural resources or information important to understanding the past.

Reasonably Foreseeable Future Actions – Grazing, other agricultural activities and wildfires are likely to continue within the cultural resource CESA but probably, on average, with fewer impacts to cultural resources than in the past because the more severe damage has already been done. Agricultural activities and other actions on private land have considerable potential to seriously damage cultural resources that are part of the prehistoric settlement system within the CESA, but private development plans, if any, are unknown and outside the purview of BLM responsibility and this project analysis. An ongoing 320 acre BLM tree thinning project in Payne Basin north of the Project Area is unlikely to do any harm to cultural resources since it lies within an old chaining area where any cultural resources that were present are assumed to have been destroyed. Reasonably foreseeable mining activities include Notices and plans of operations; however, there are no pending Notices or plans other than the proposed action within the cultural resource CESA. The Pequop Wind Project would only disturb one acre in the CESA and would be subject to mitigation measures to lessen impacts to historic properties.

The condition of cultural resources within the CESA will likely continue to deteriorate due to both human and natural causes. While the Project would contribute to the overall decline, mitigation measures would prevent the majority of damage and overall incremental impacts would be comparatively minor.

3.5 Mitigation and Monitoring

The Environmental Protection Measures described in the Proposed Action (Section 2.1.11) are sufficient for this action and no specific mitigation measures are necessary.

4 CONSULTATION AND COORDINATION

The Plan was made available to the public on July 25, 2007 and comments were requested by August 27, 2007. No comments were received. Coordination with the Wells Band of the Te-Moak Tribe has included a presentation and field tours, and is ongoing. The Nevada Department of Wildlife participated in preparation of this EA. This EA will be available from the Elko District public webpage at www.blm.gov/nv prior to issuance of a decision concerning BLM's approval of the Plan.

4.1 Persons, Groups, and Agencies Consulted

Rory Lamp	NDOW, Elko, Nevada
Katie Miller	NDOW, Elko, Nevada
Shane Martin and Connie Davis	NDEP/BMRR, Carson City, Nevada
Environmental Coordinator	Wells Band of the Te-Moak Tribe of Western Shoshone,

4.2 List of Preparers

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